FIG. 1

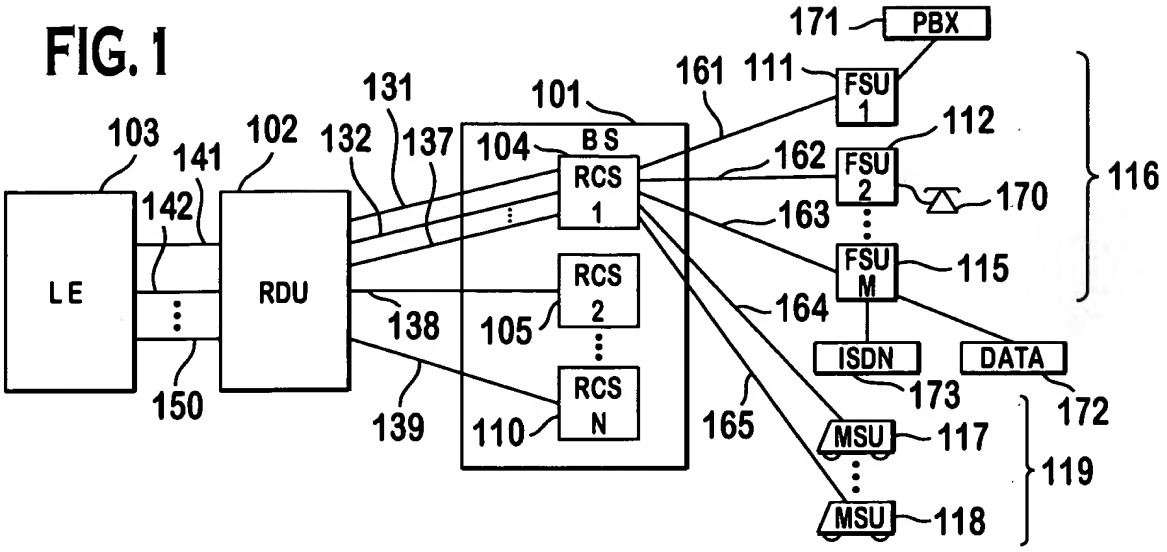


FIG. 2A

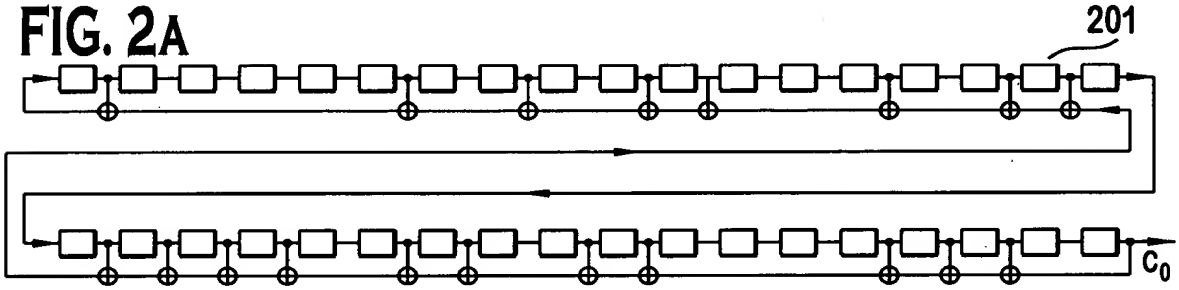


FIG. 2B

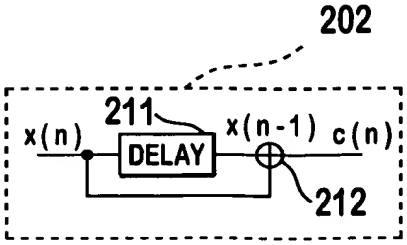
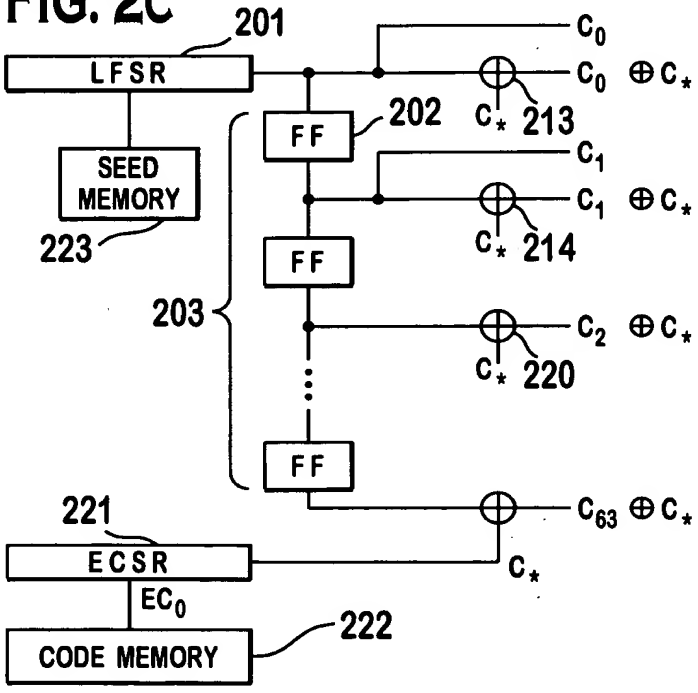


FIG. 2C



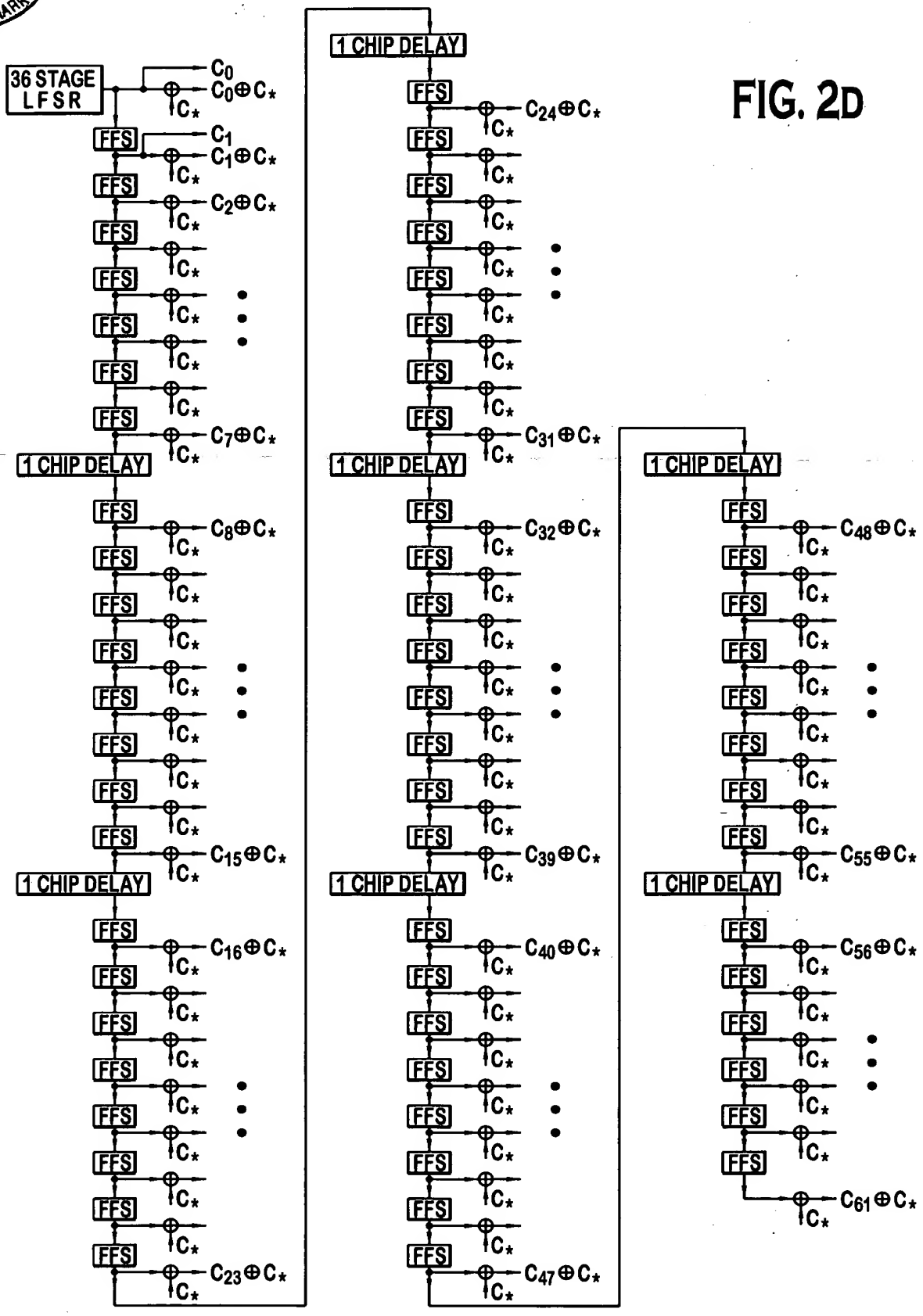


FIG. 2D

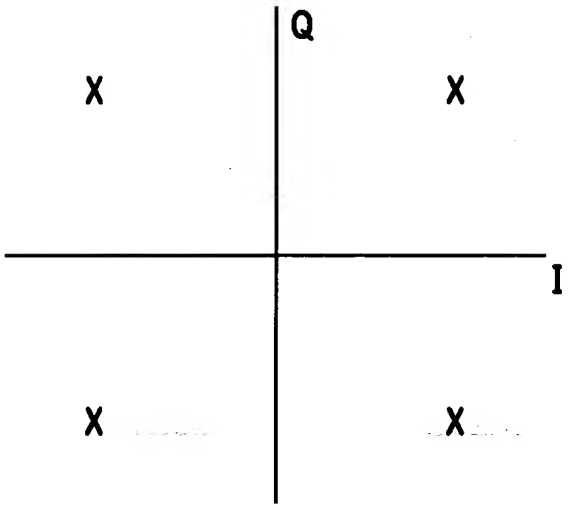


FIG. 3A

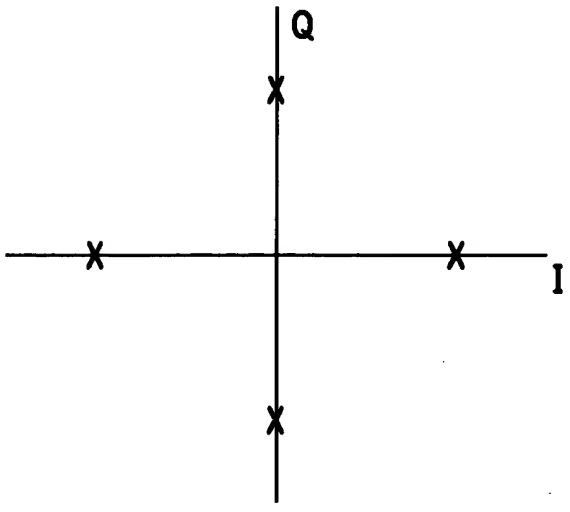


FIG. 3B

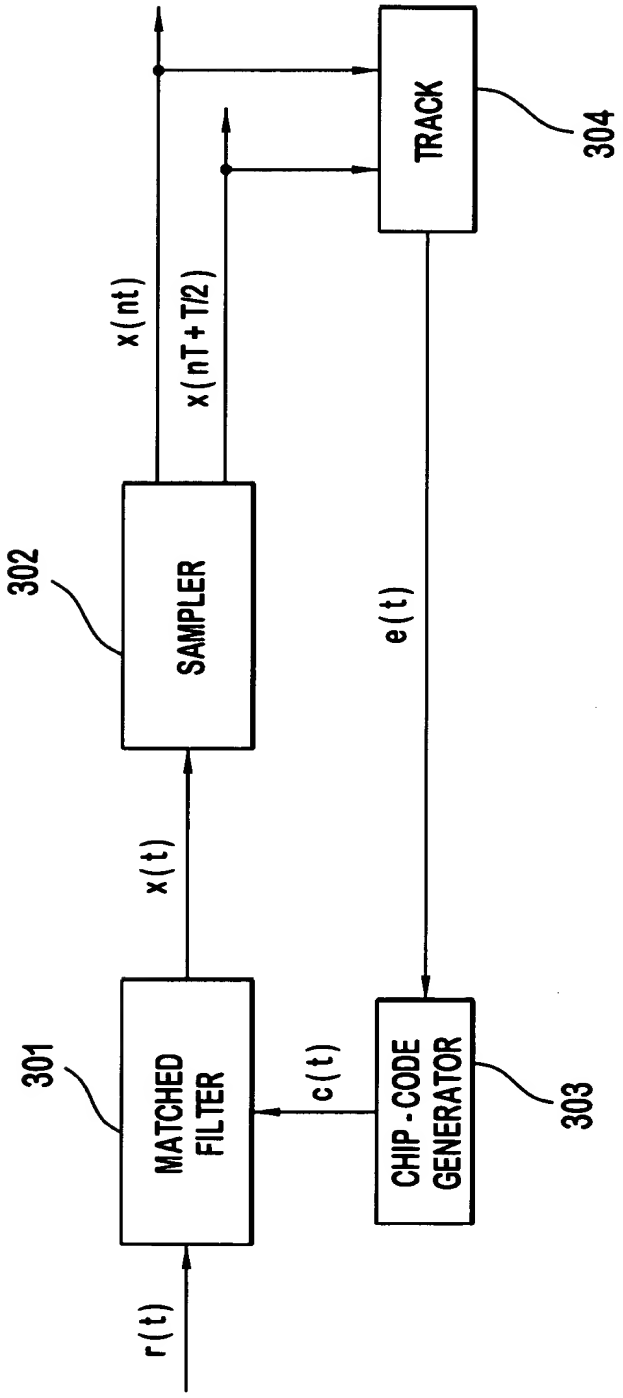


FIG. 3C

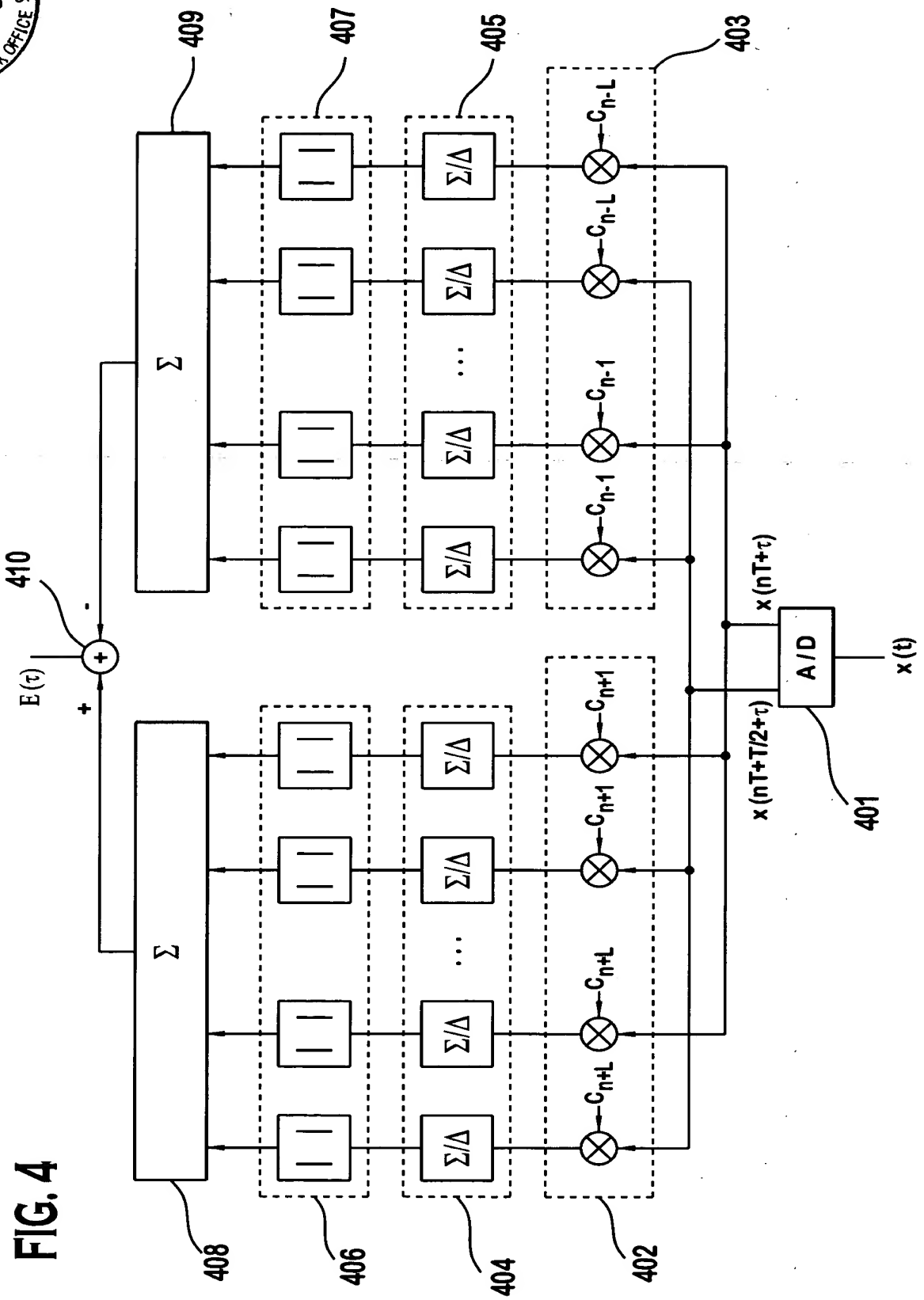


FIG. 4

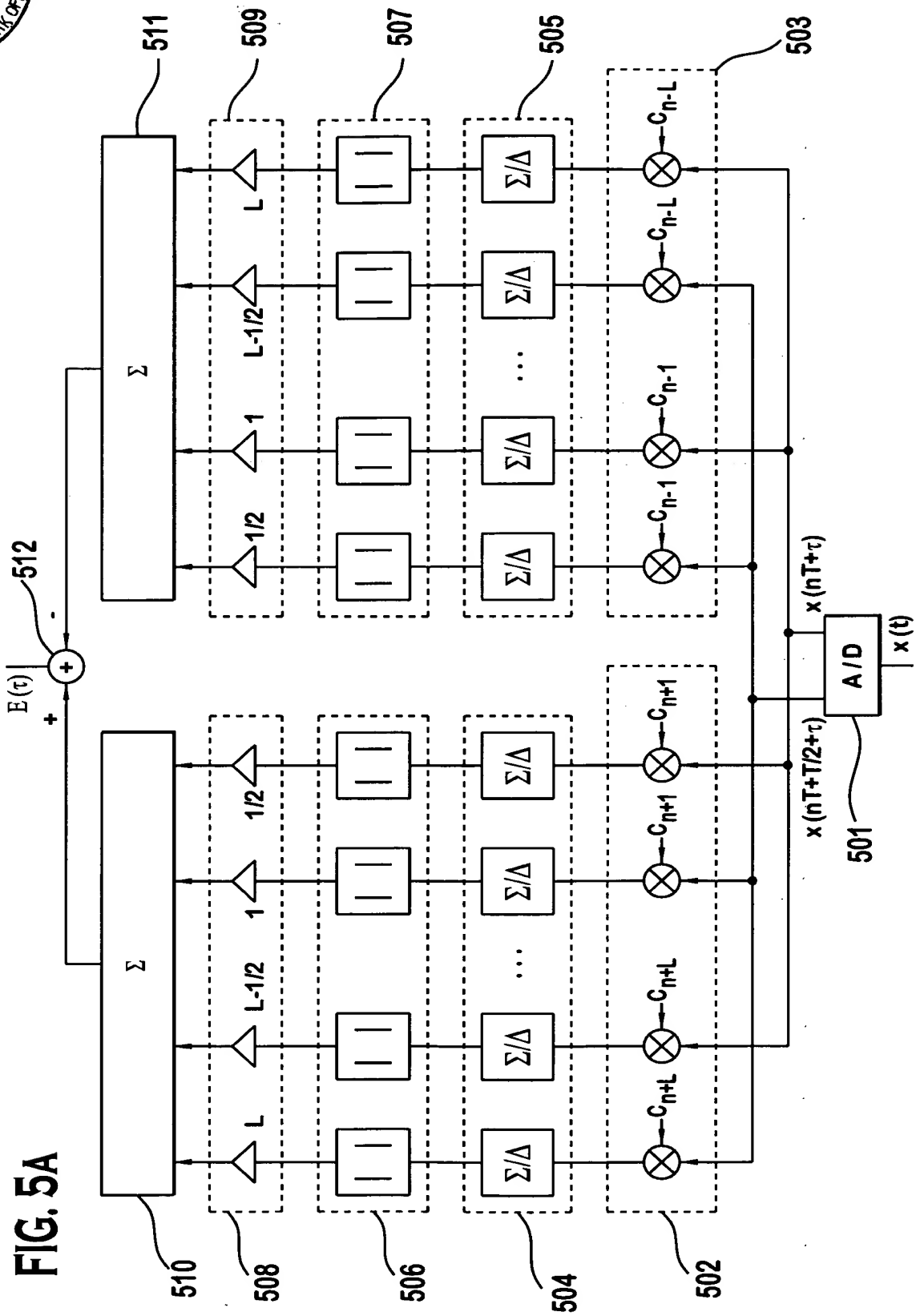
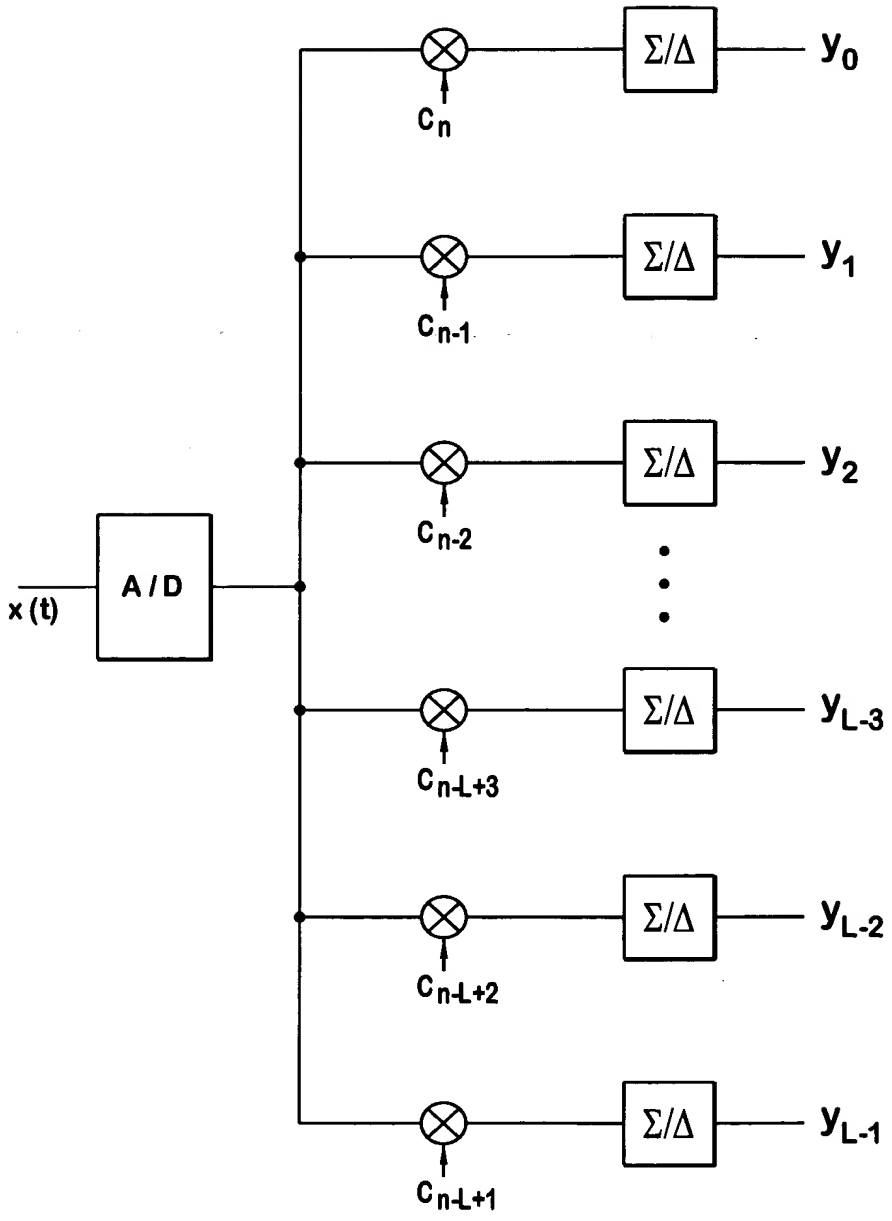


FIG. 5A

FIG. 5B



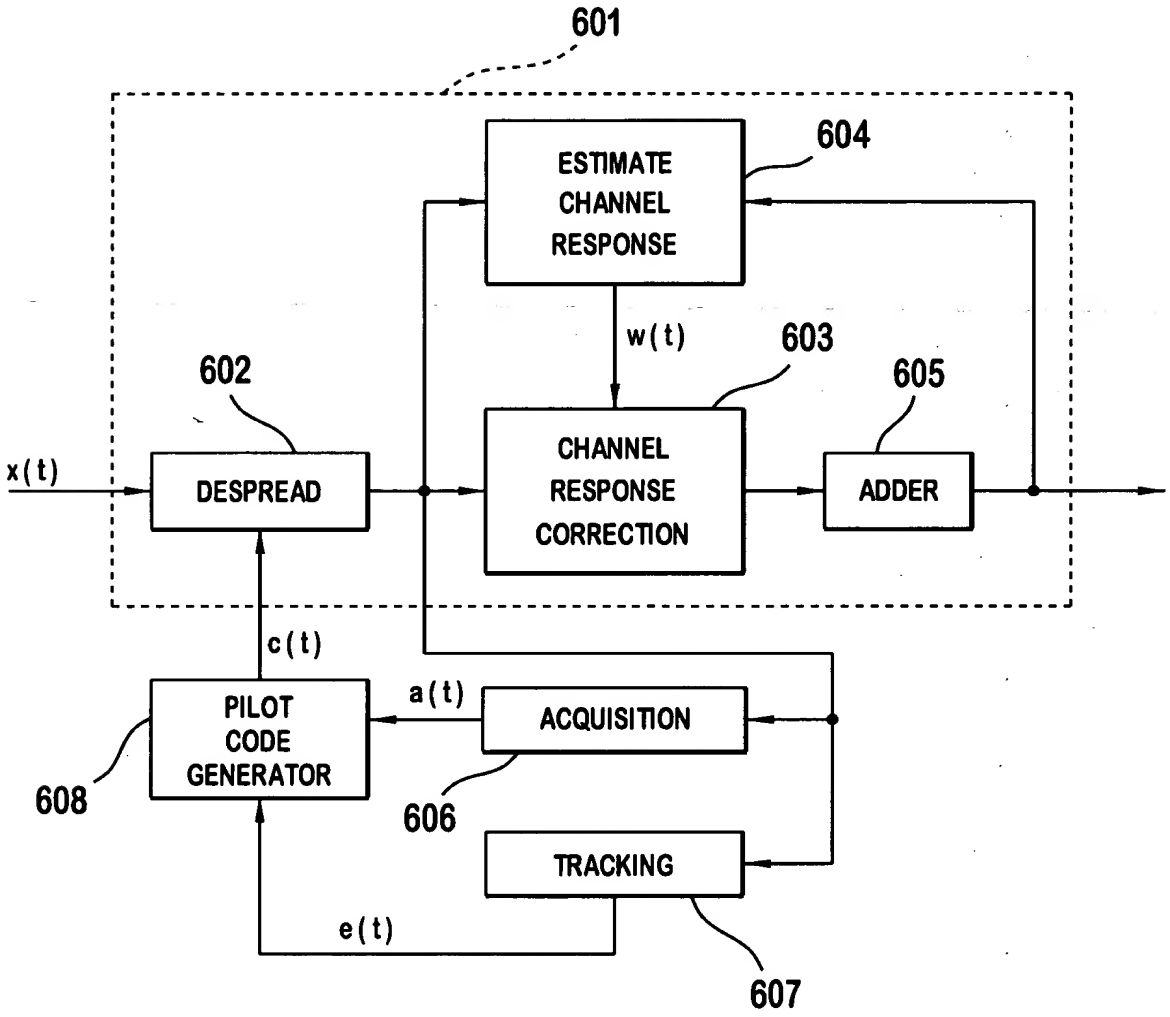


FIG. 6

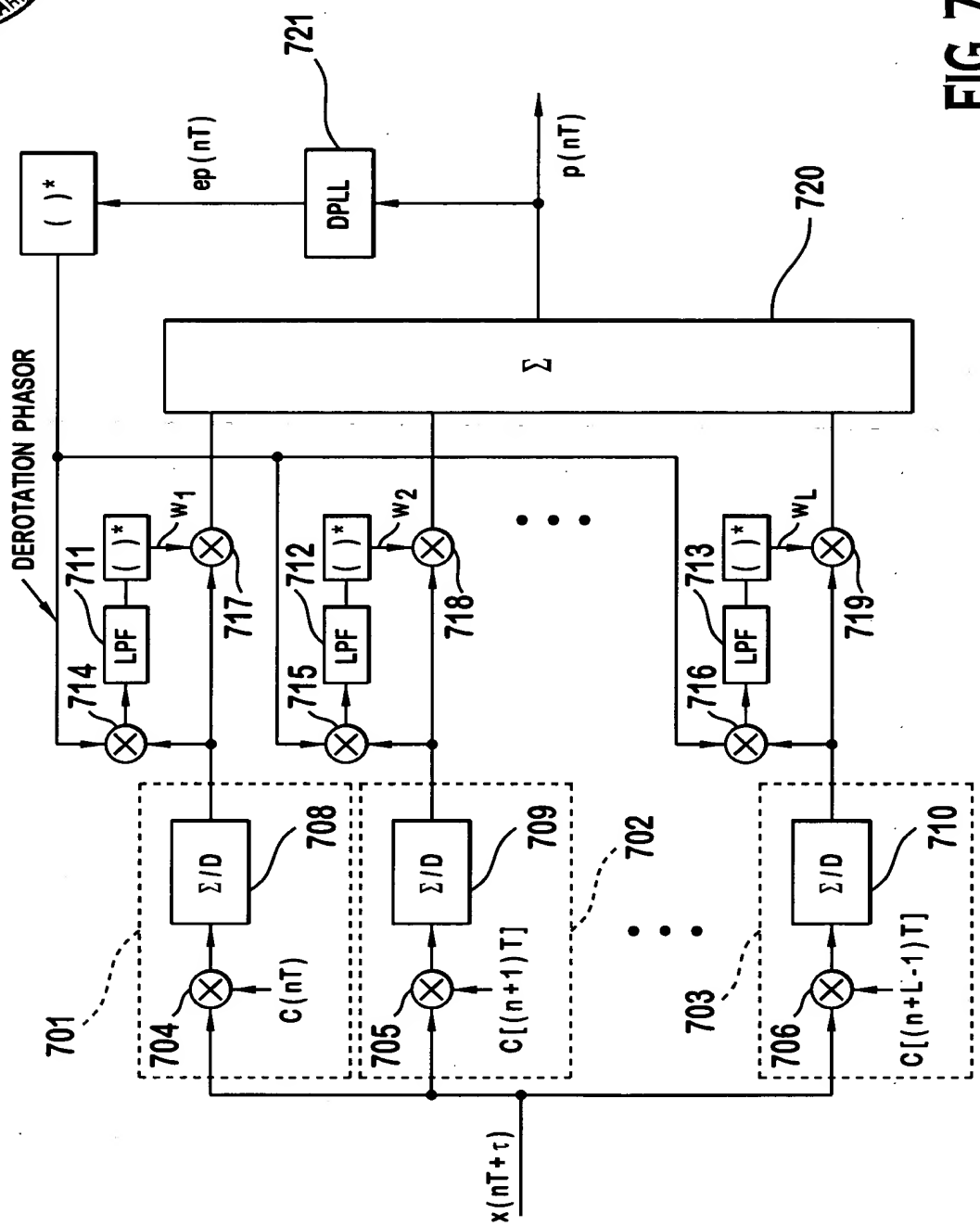


FIG. 7

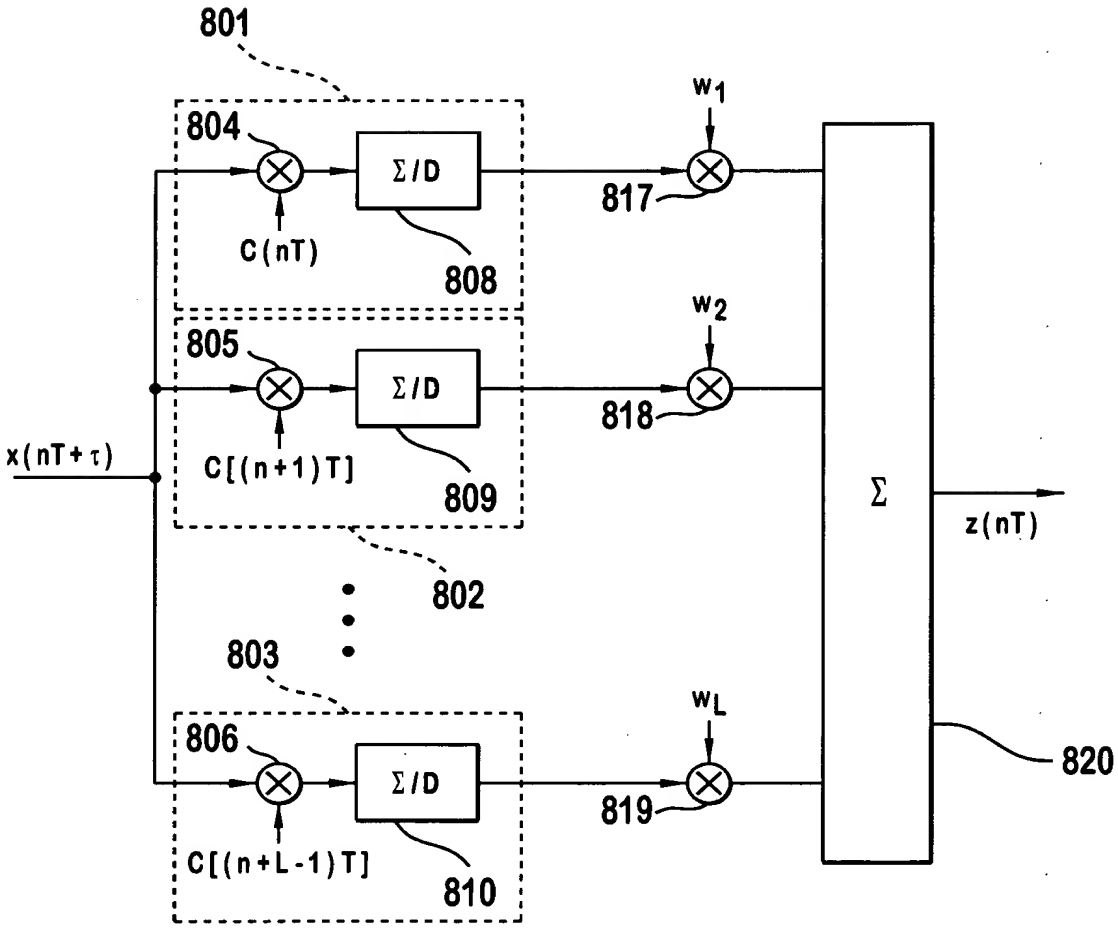


FIG. 8A

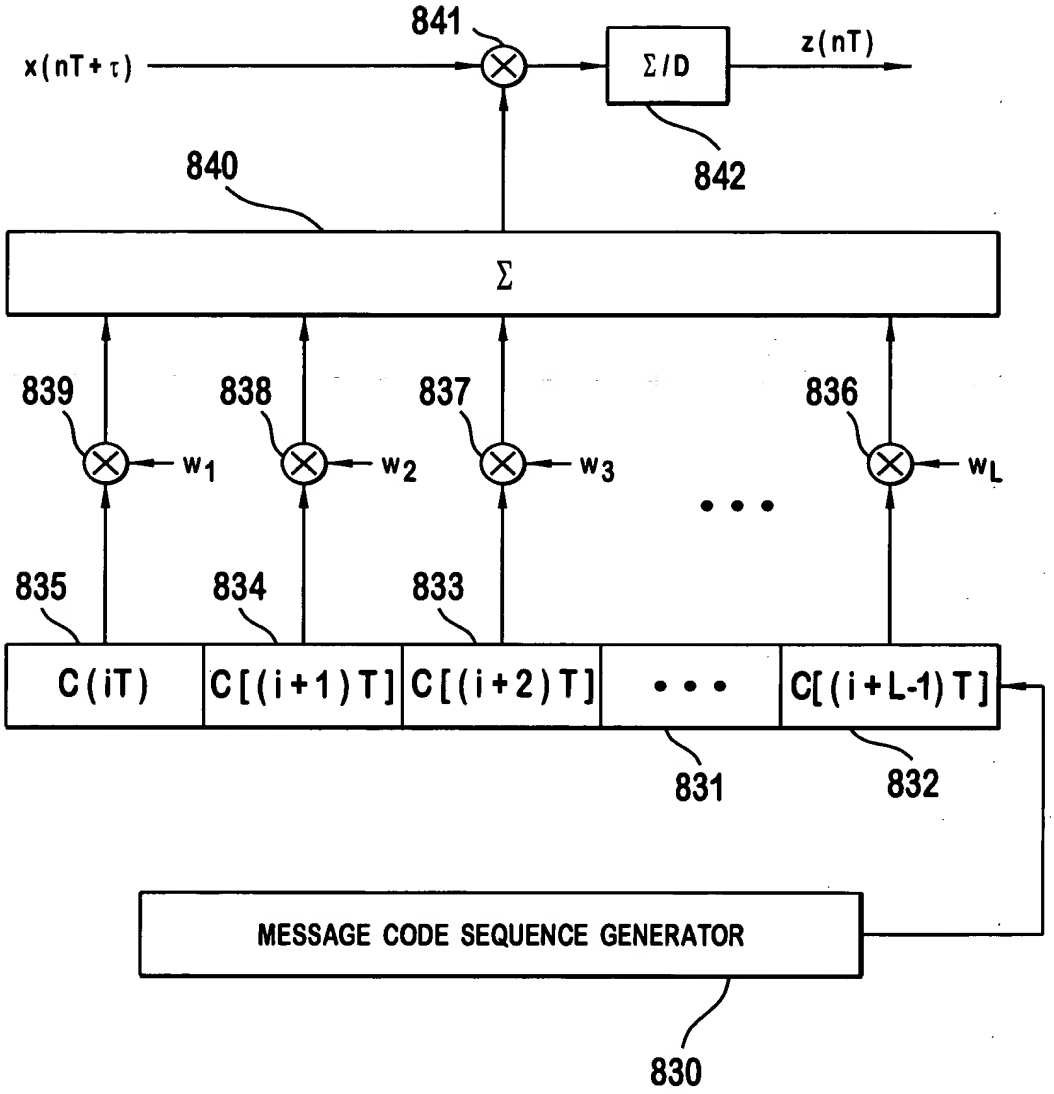


FIG. 8B

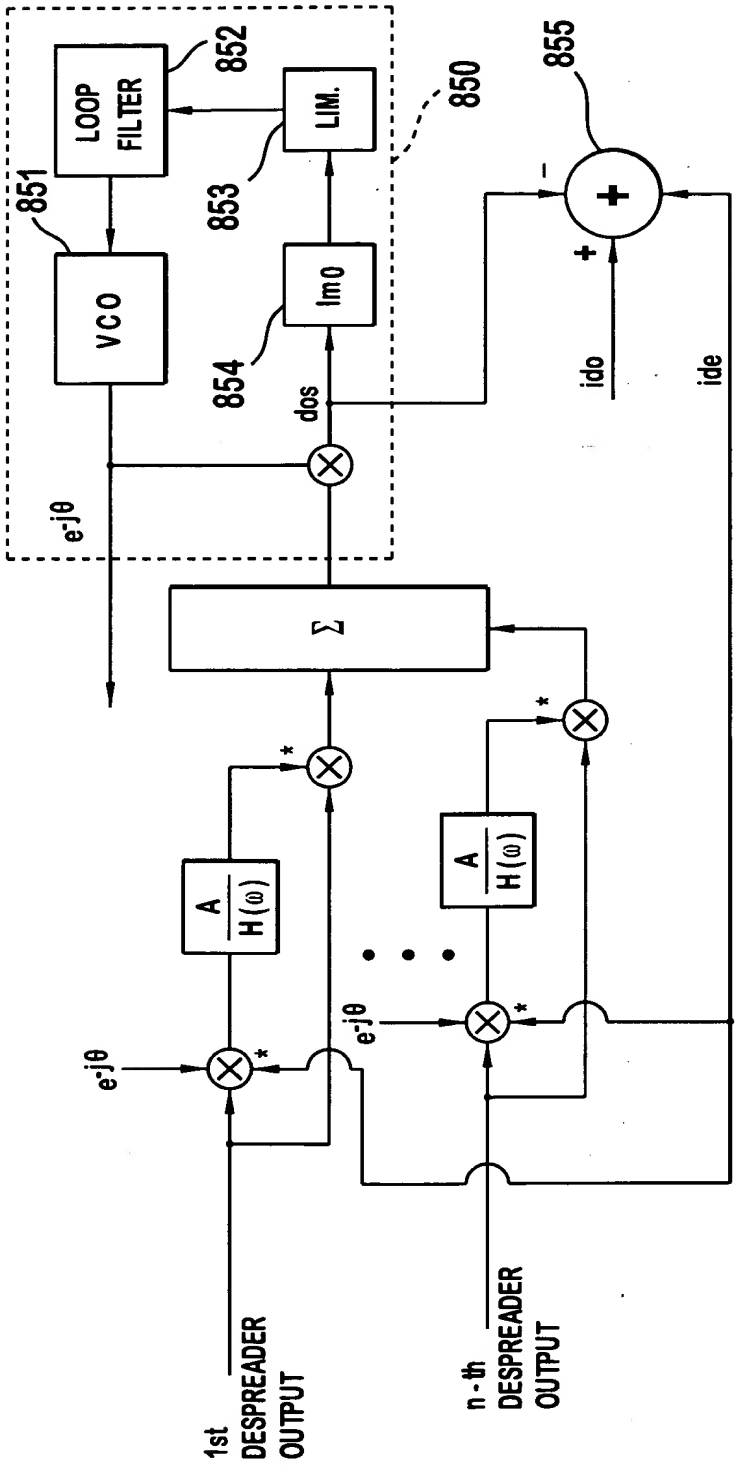


FIG. 8C

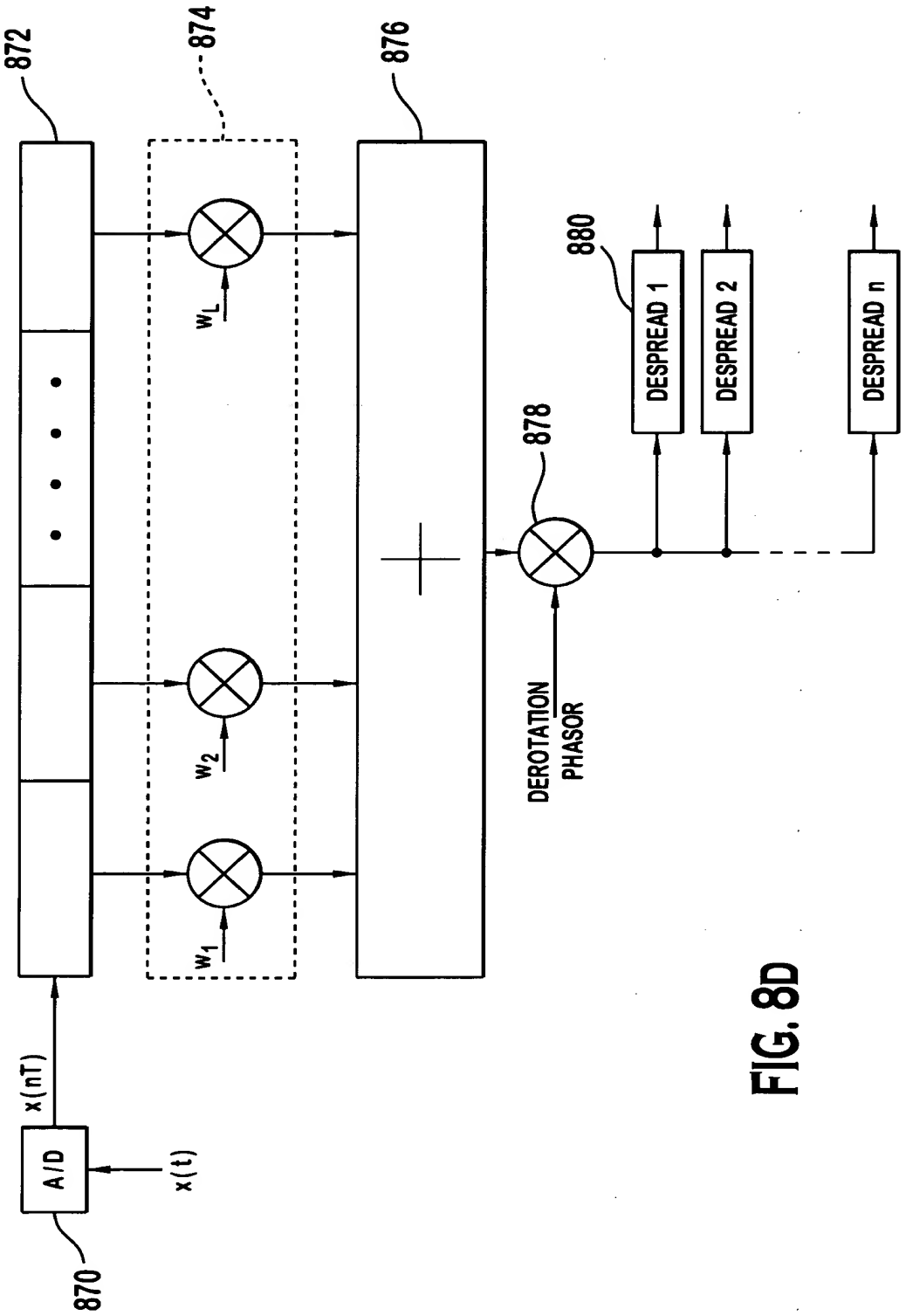


FIG. 8D

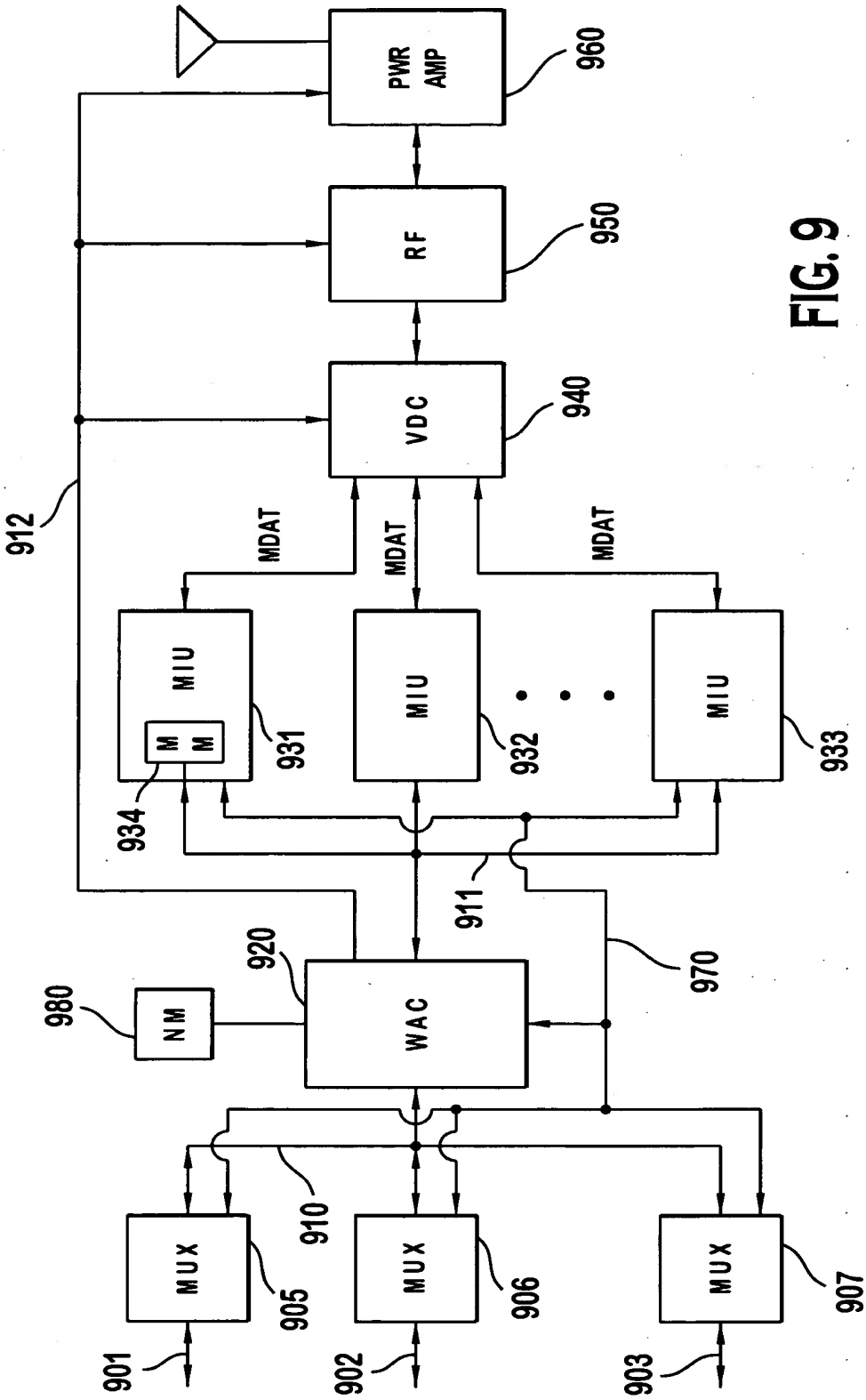


FIG. 9

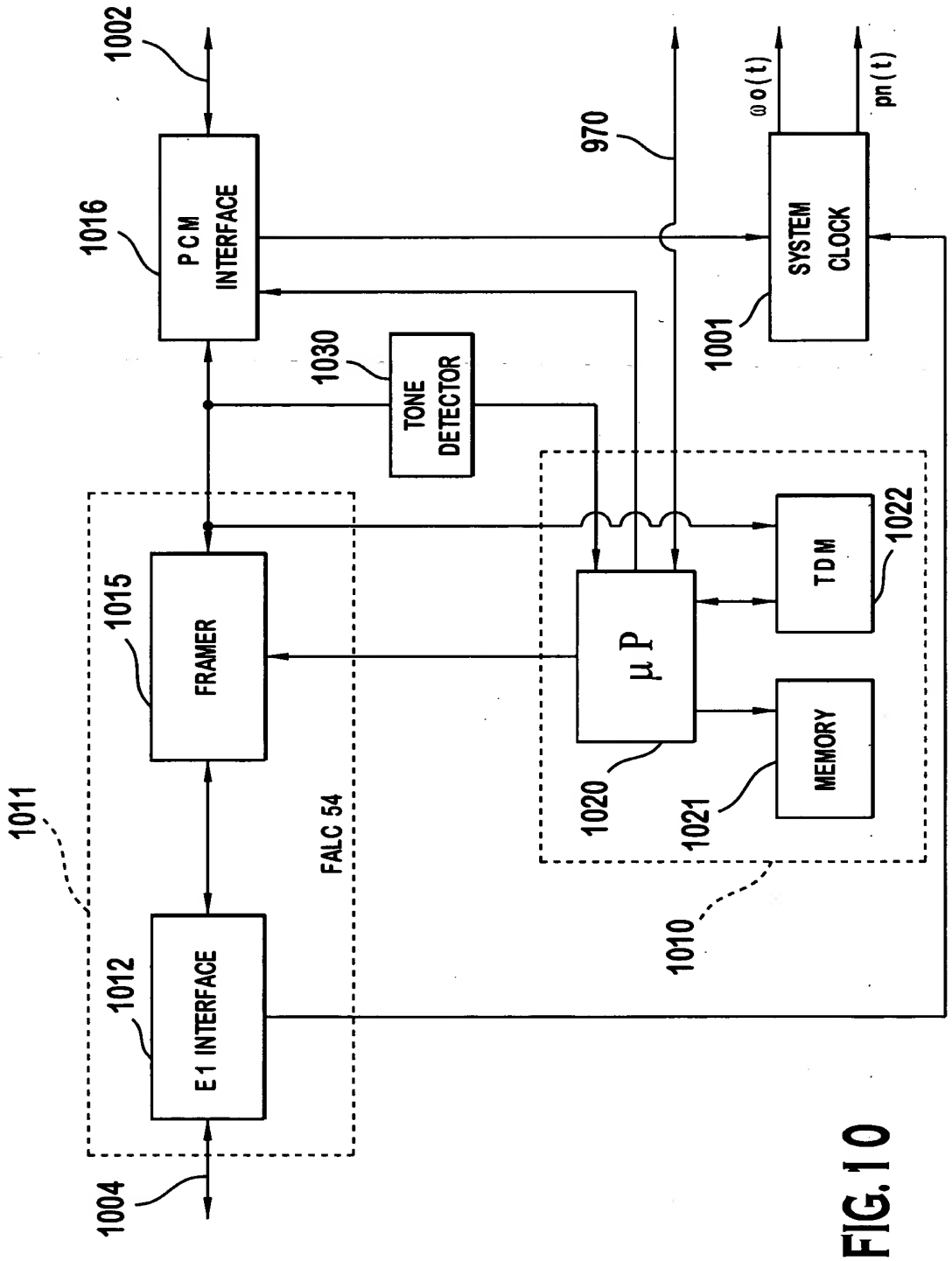
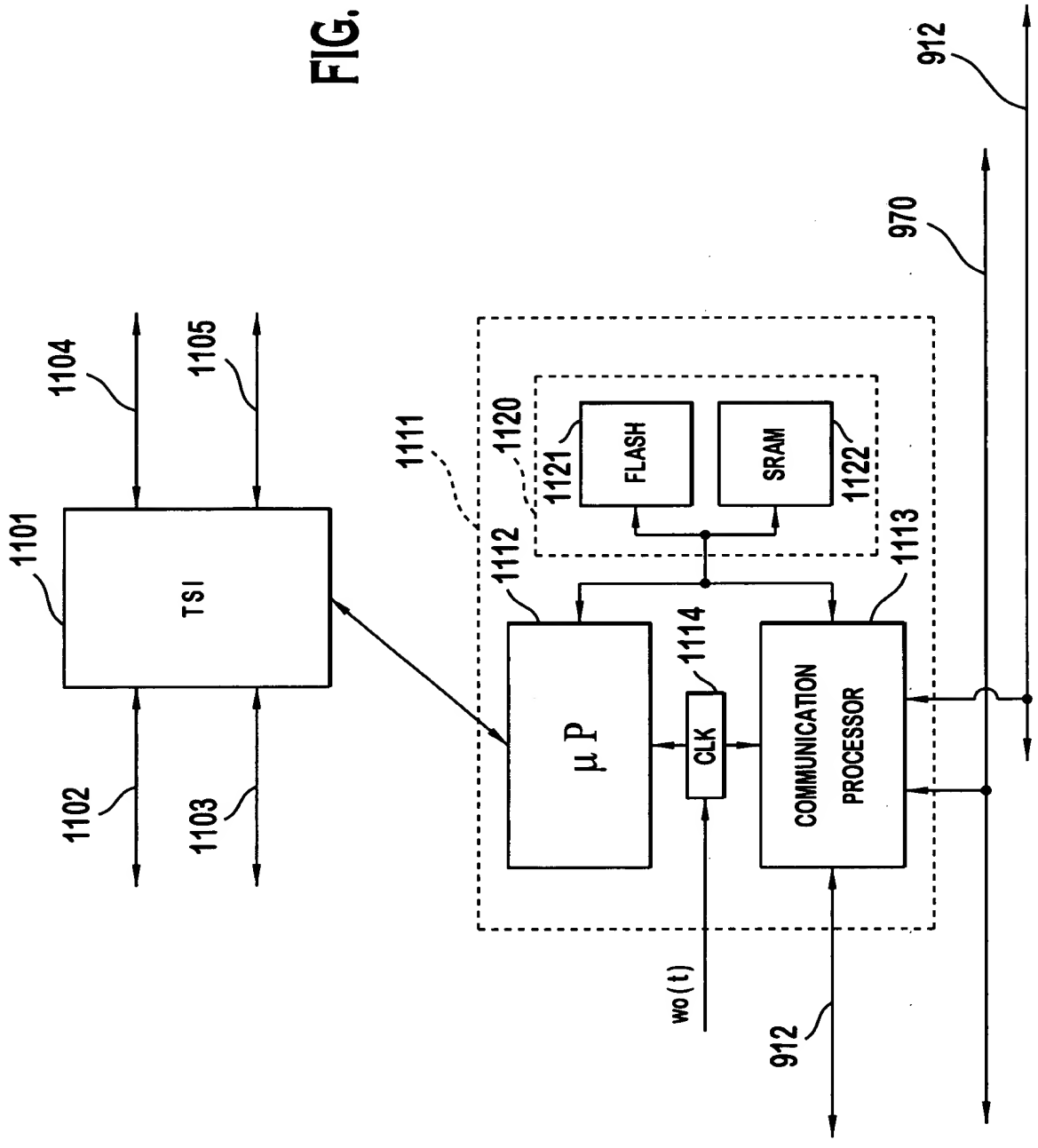


FIG. 10

FIG. 11



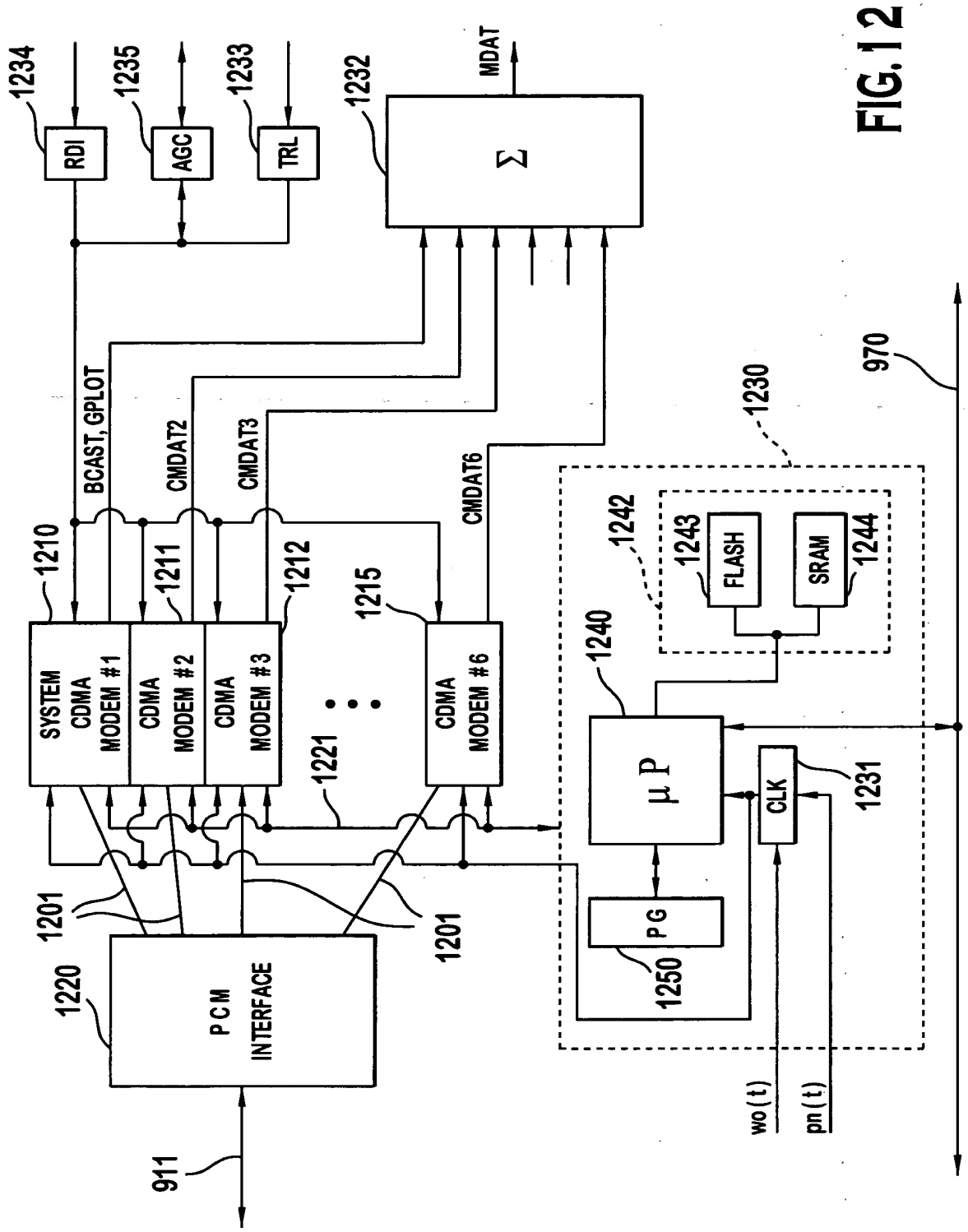


FIG. 12

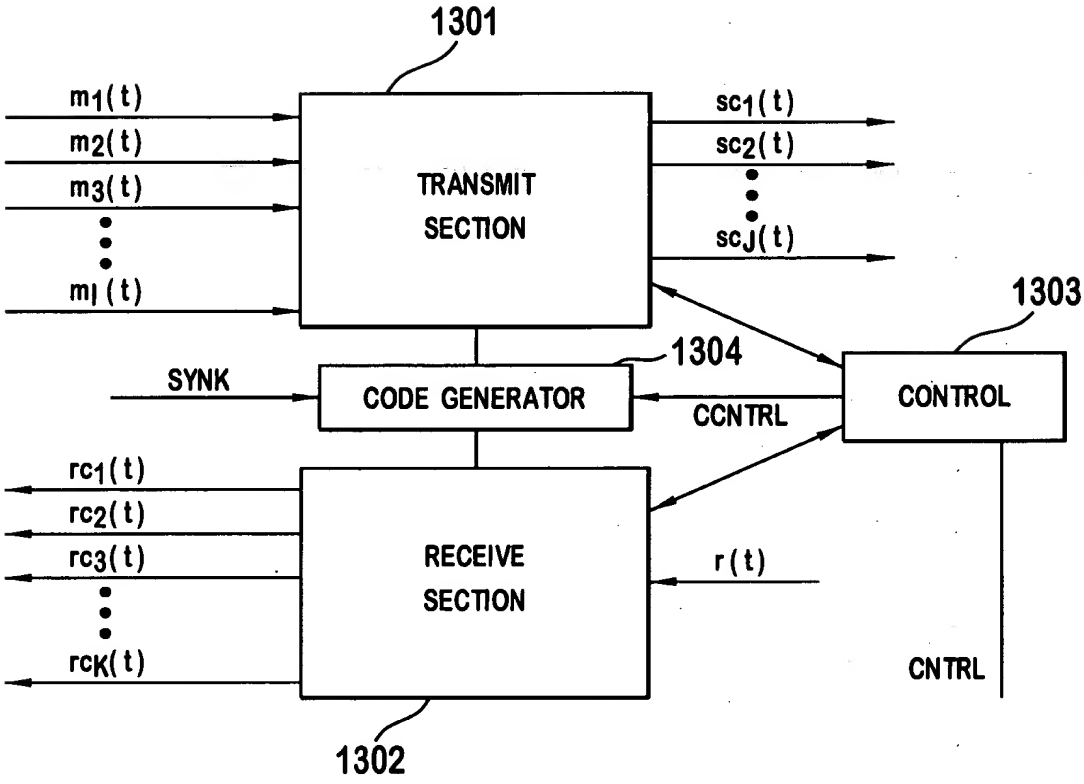


FIG. 13

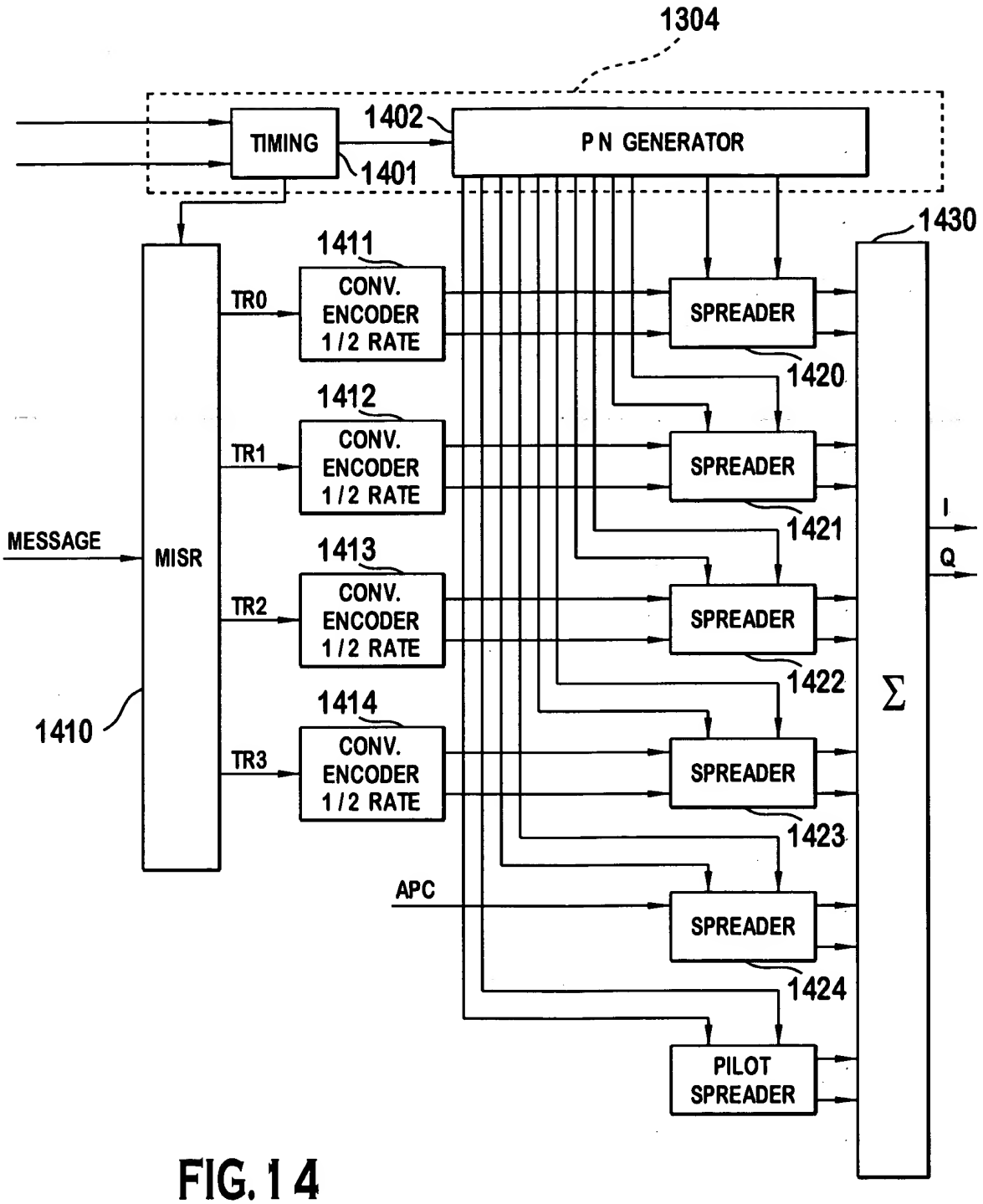
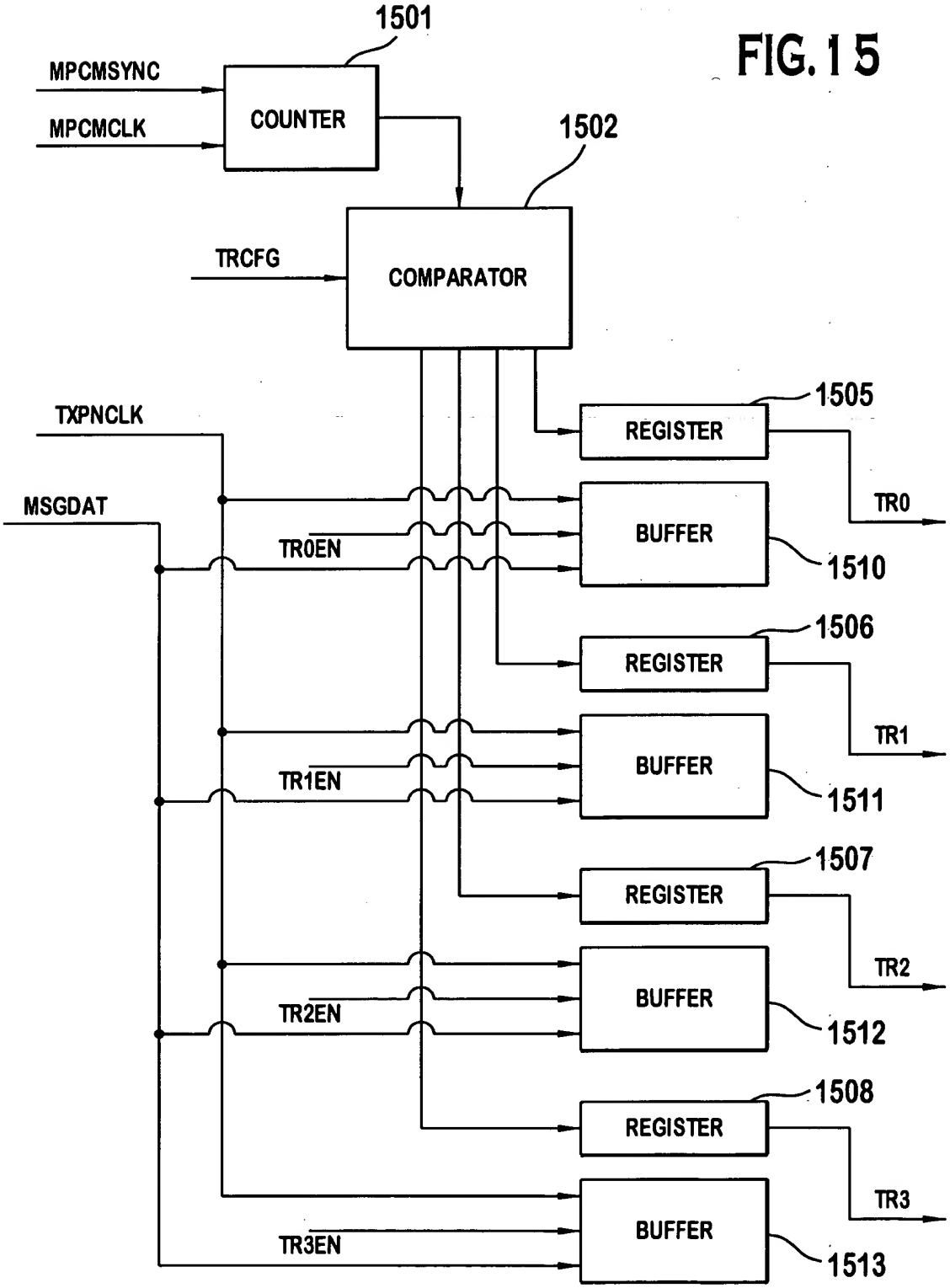


FIG. 14

FIG. 15



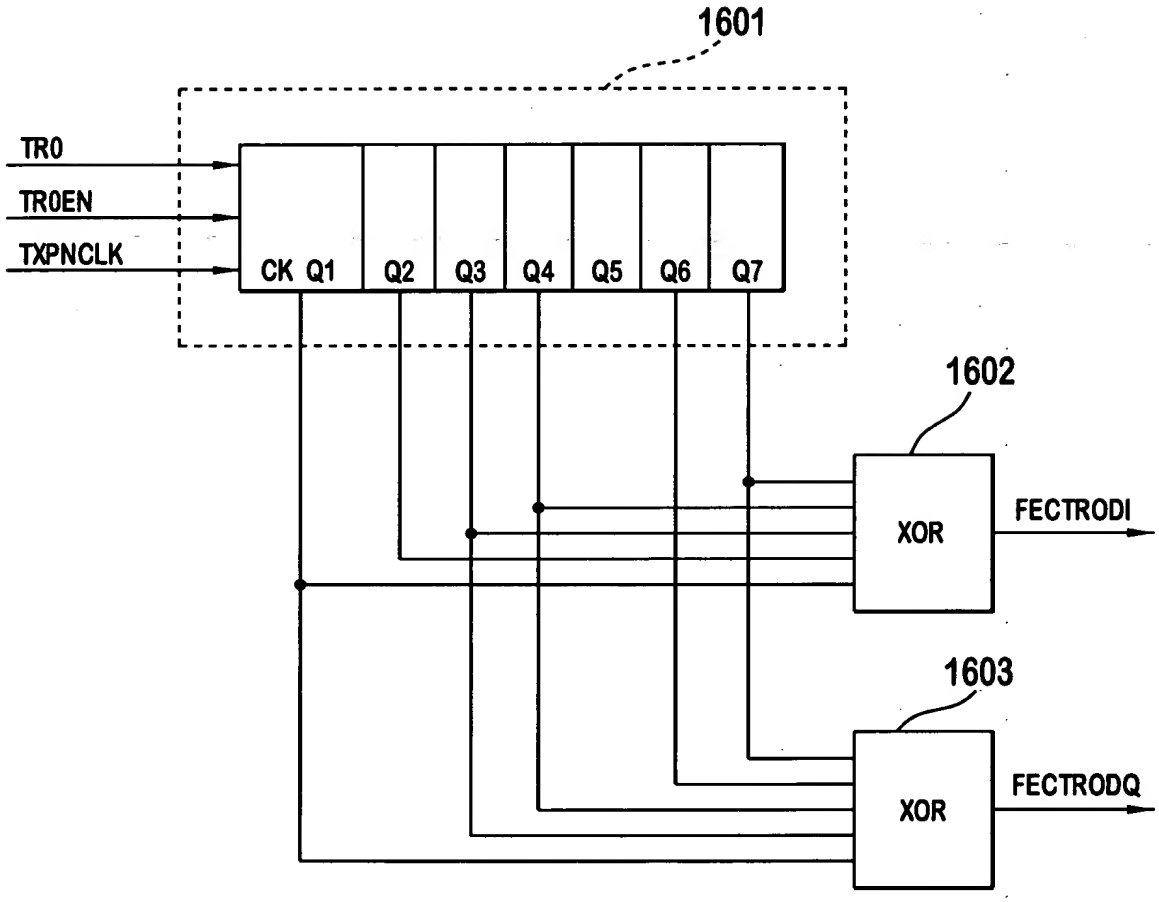


FIG. 16

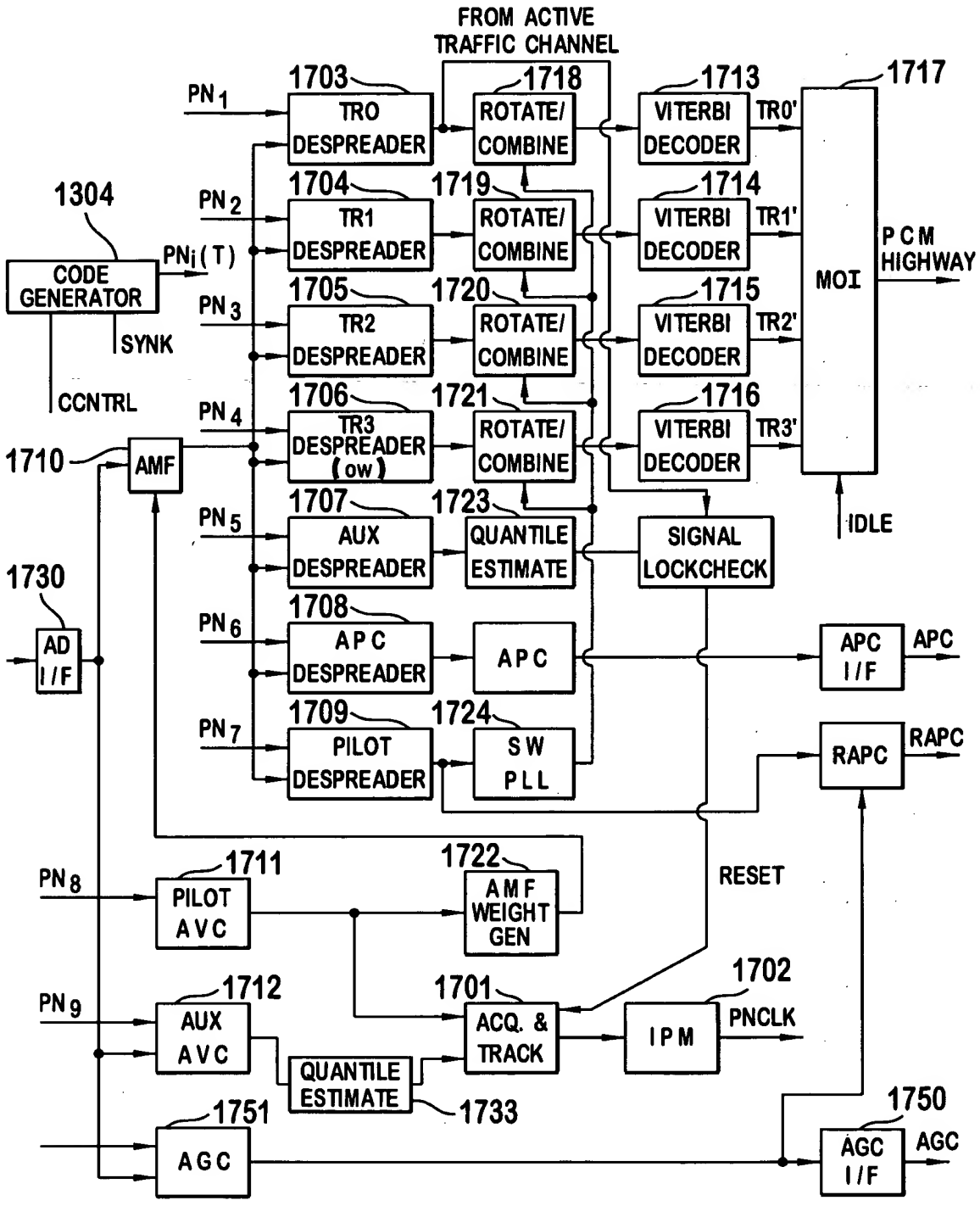


FIG. 17

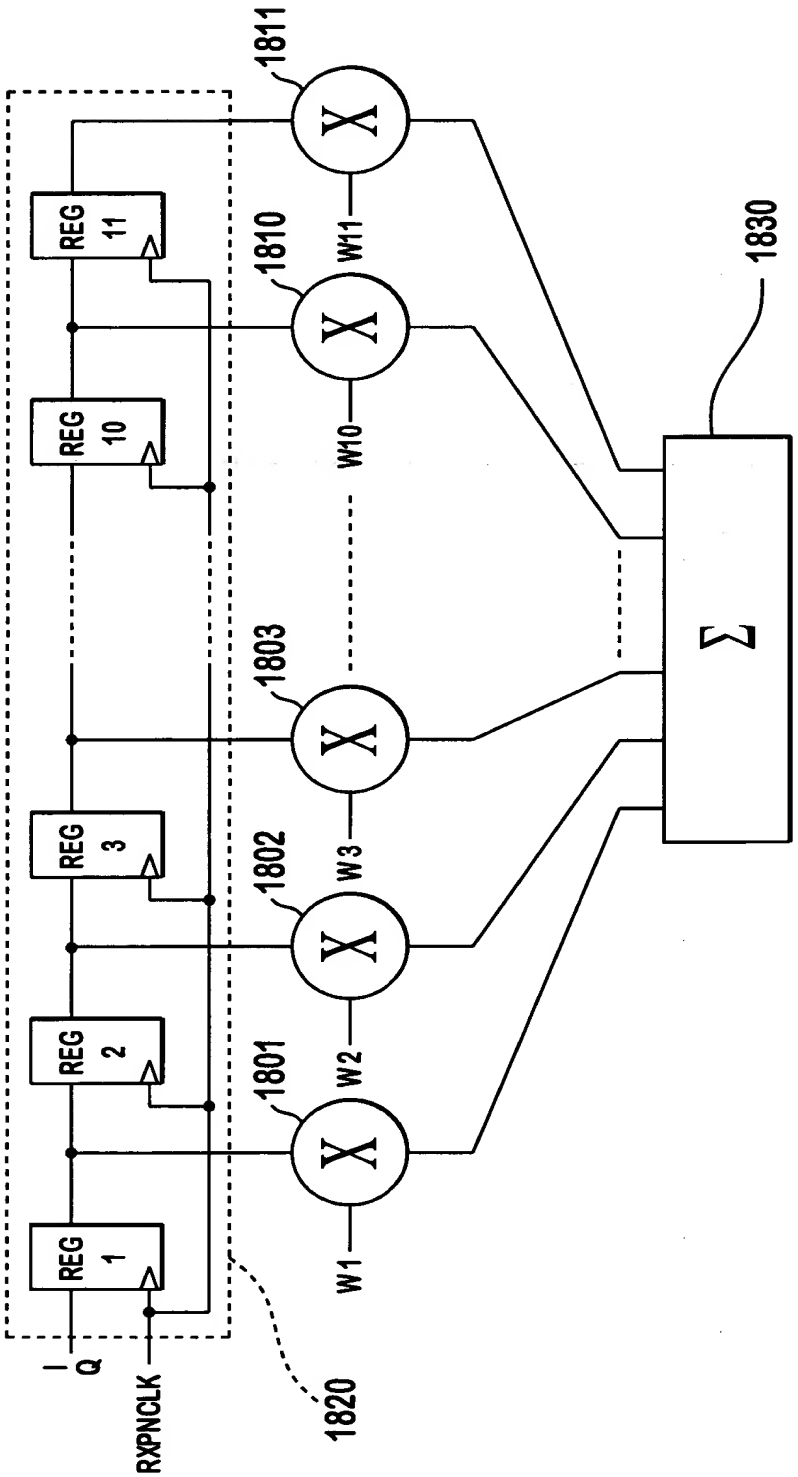


FIG.18

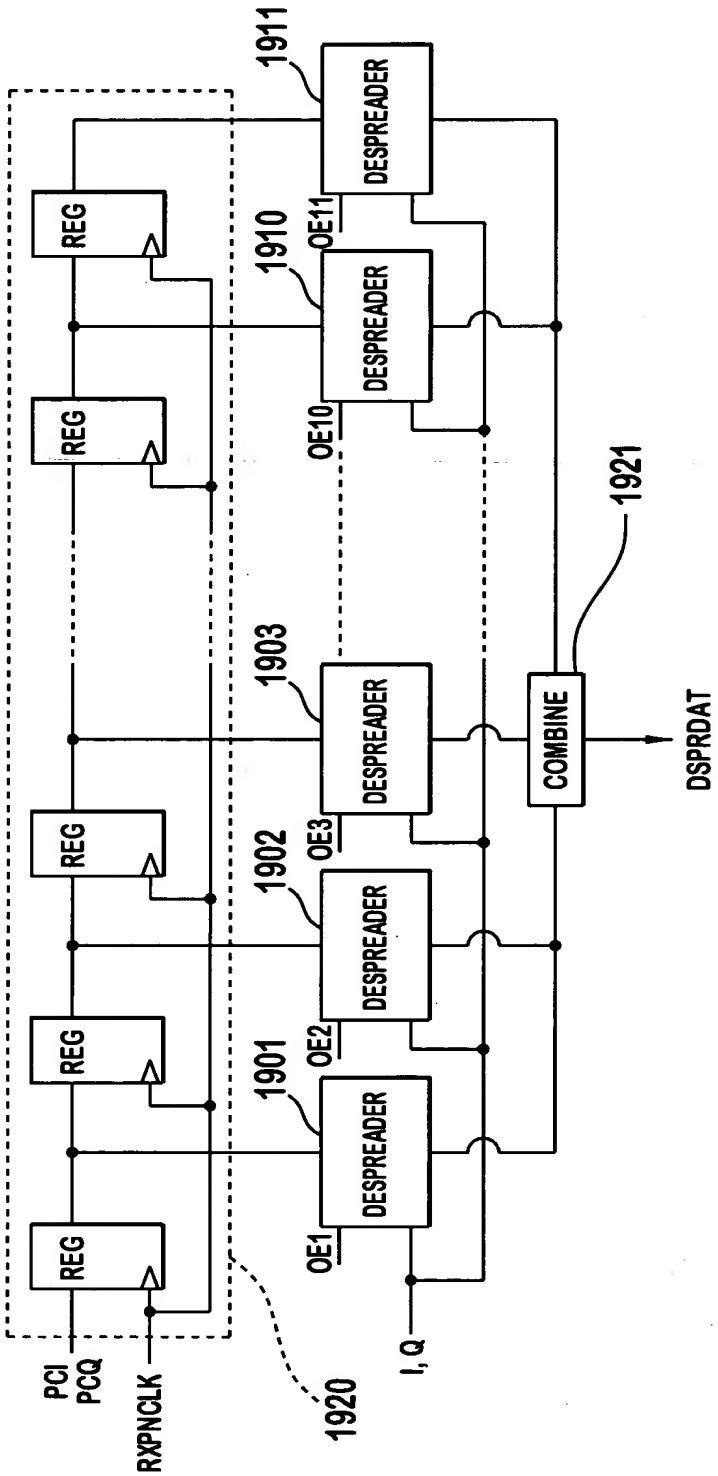


FIG. 19

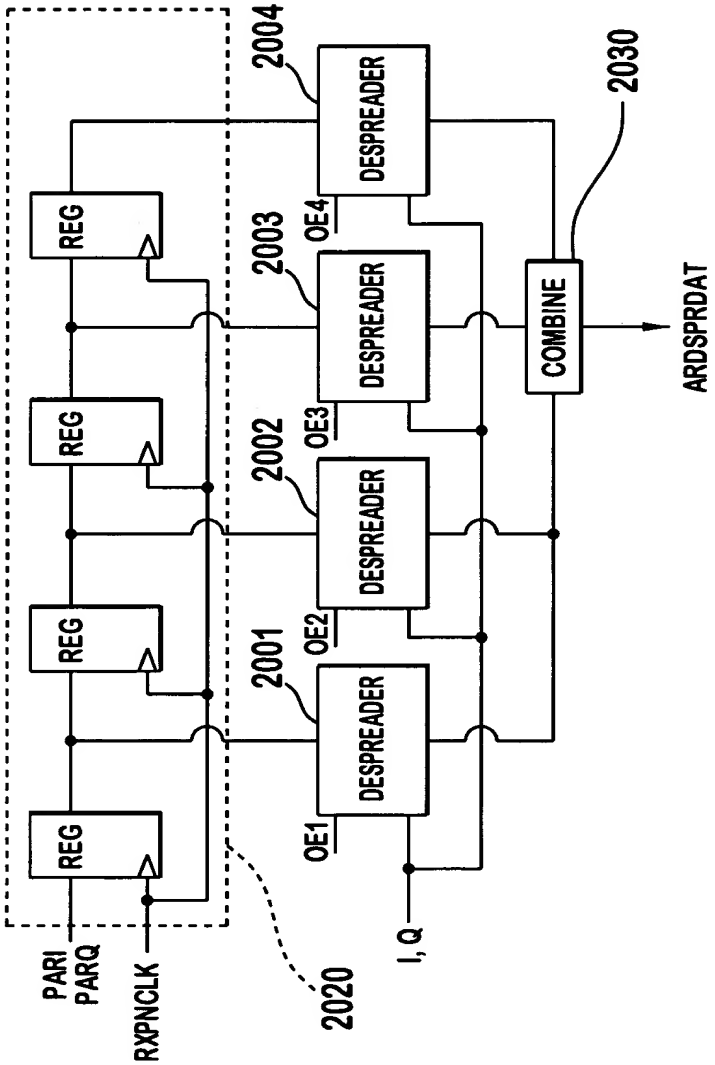
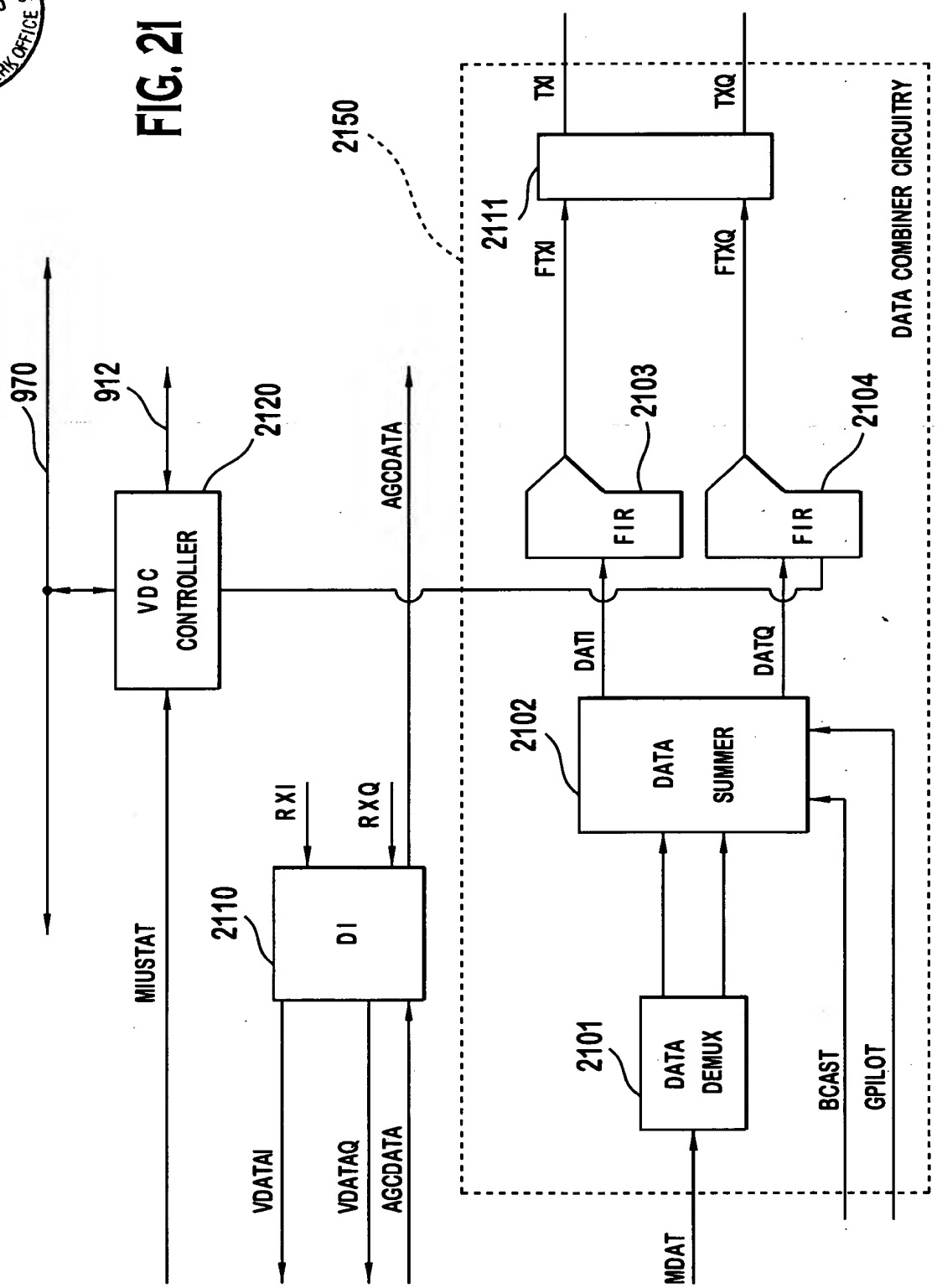


FIG. 20

FIG. 21



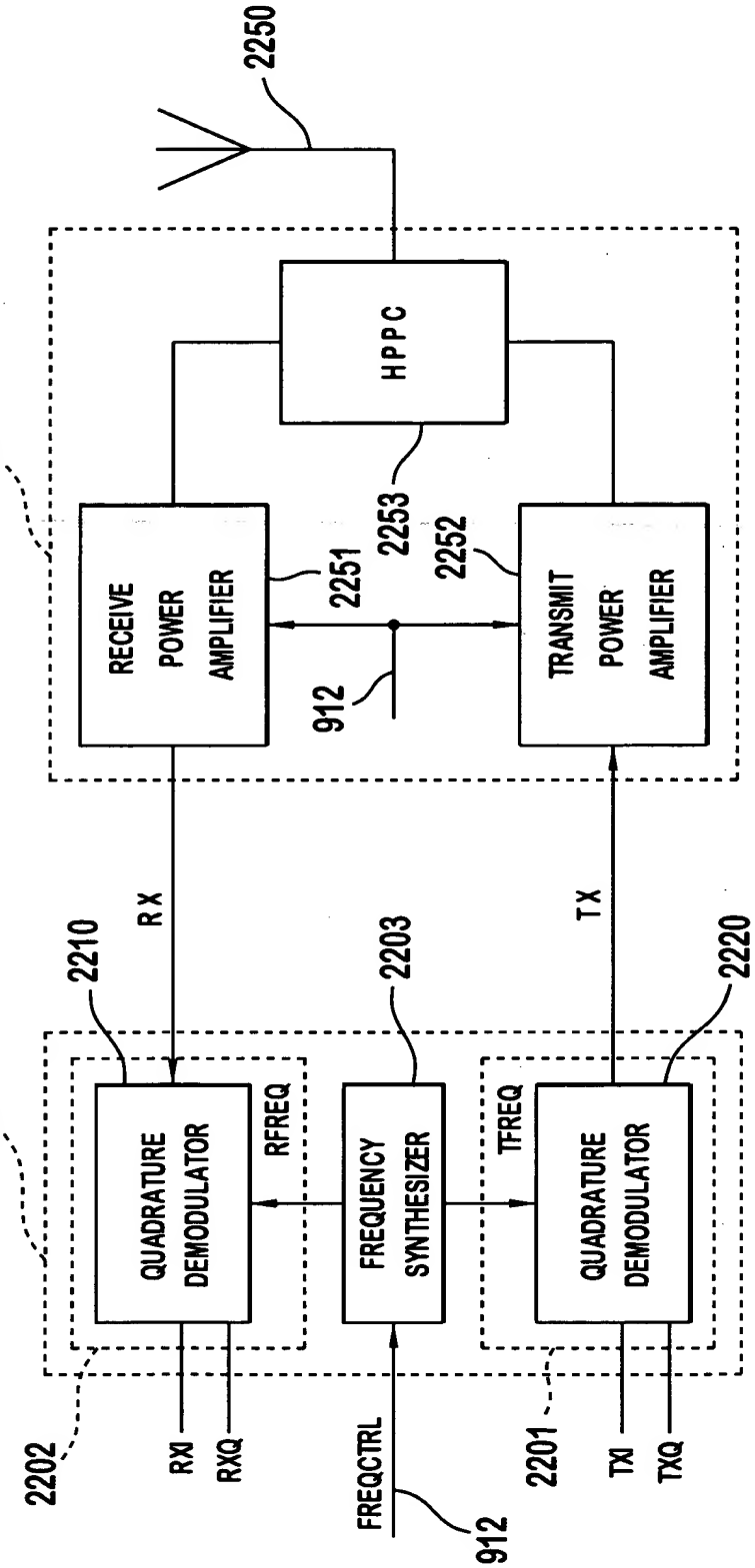
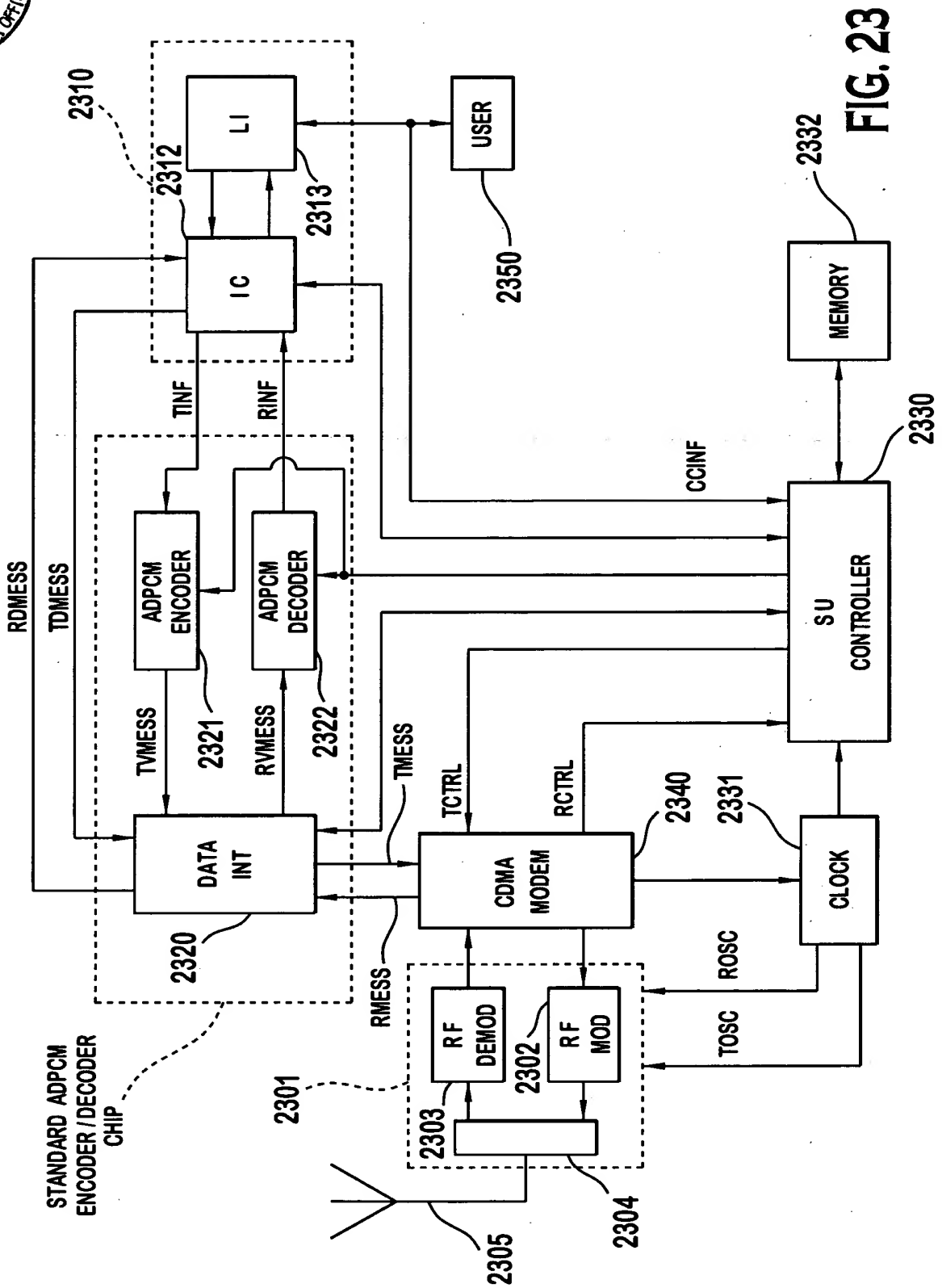


FIG. 22



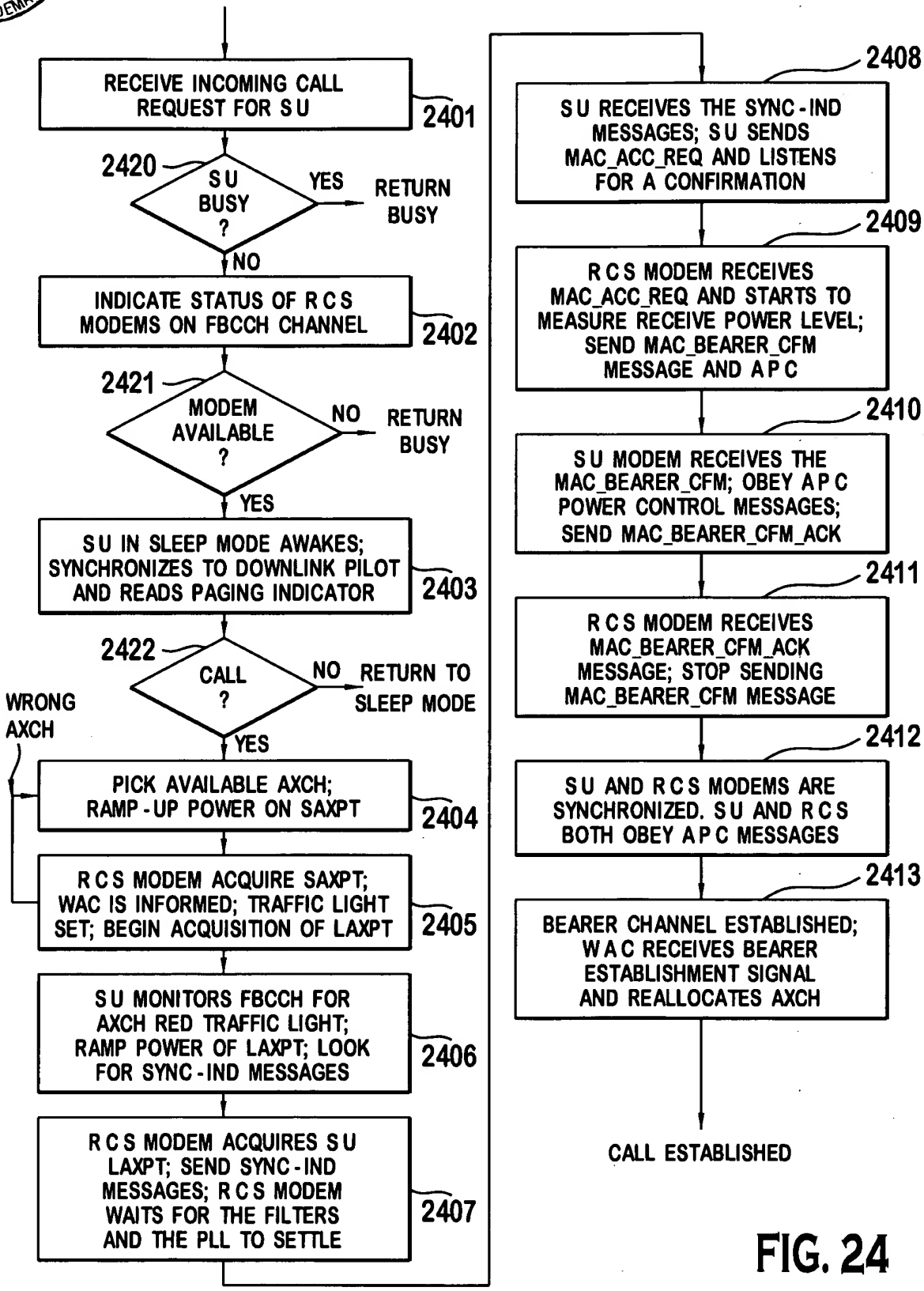


FIG. 24

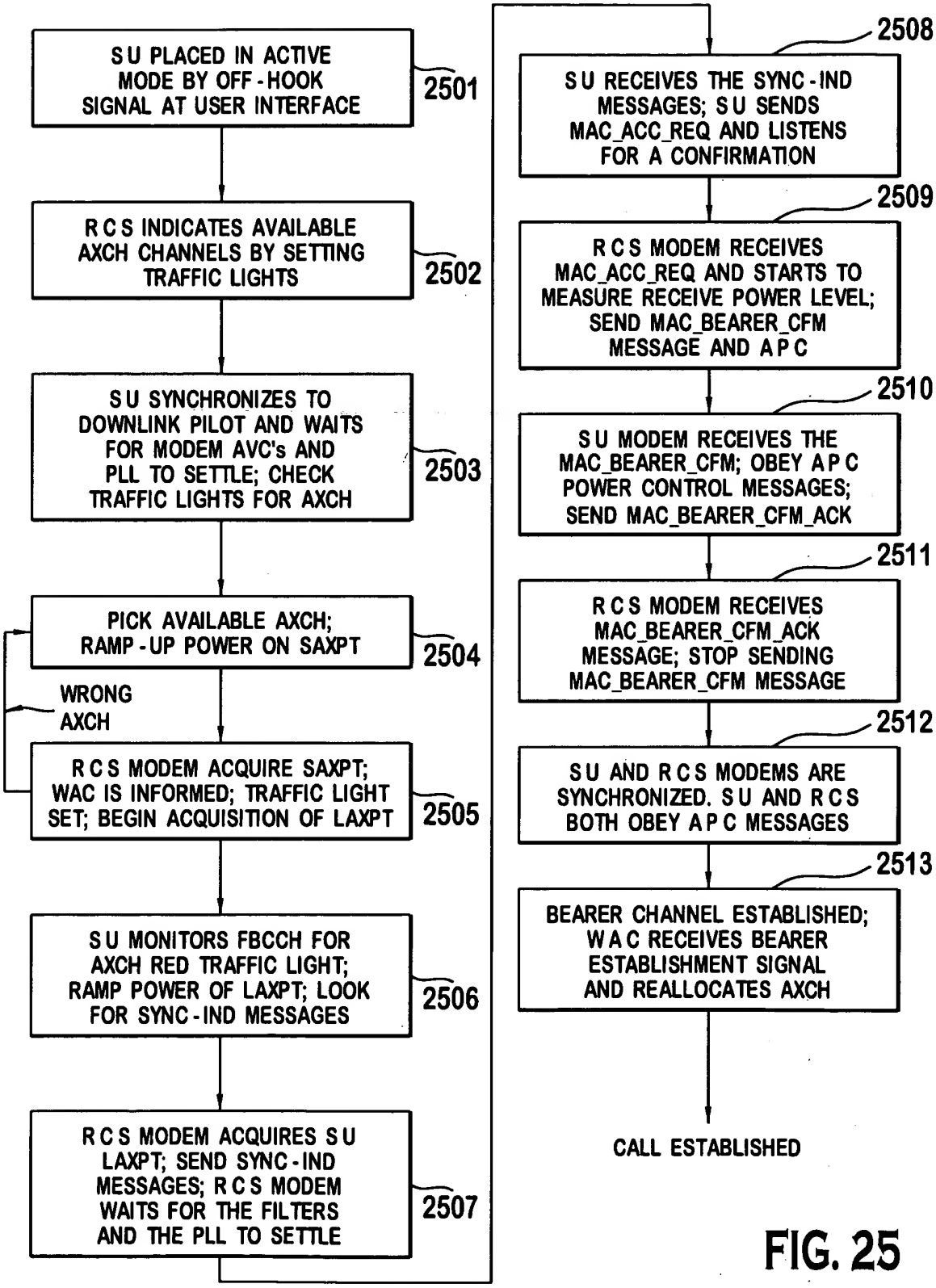


FIG. 25

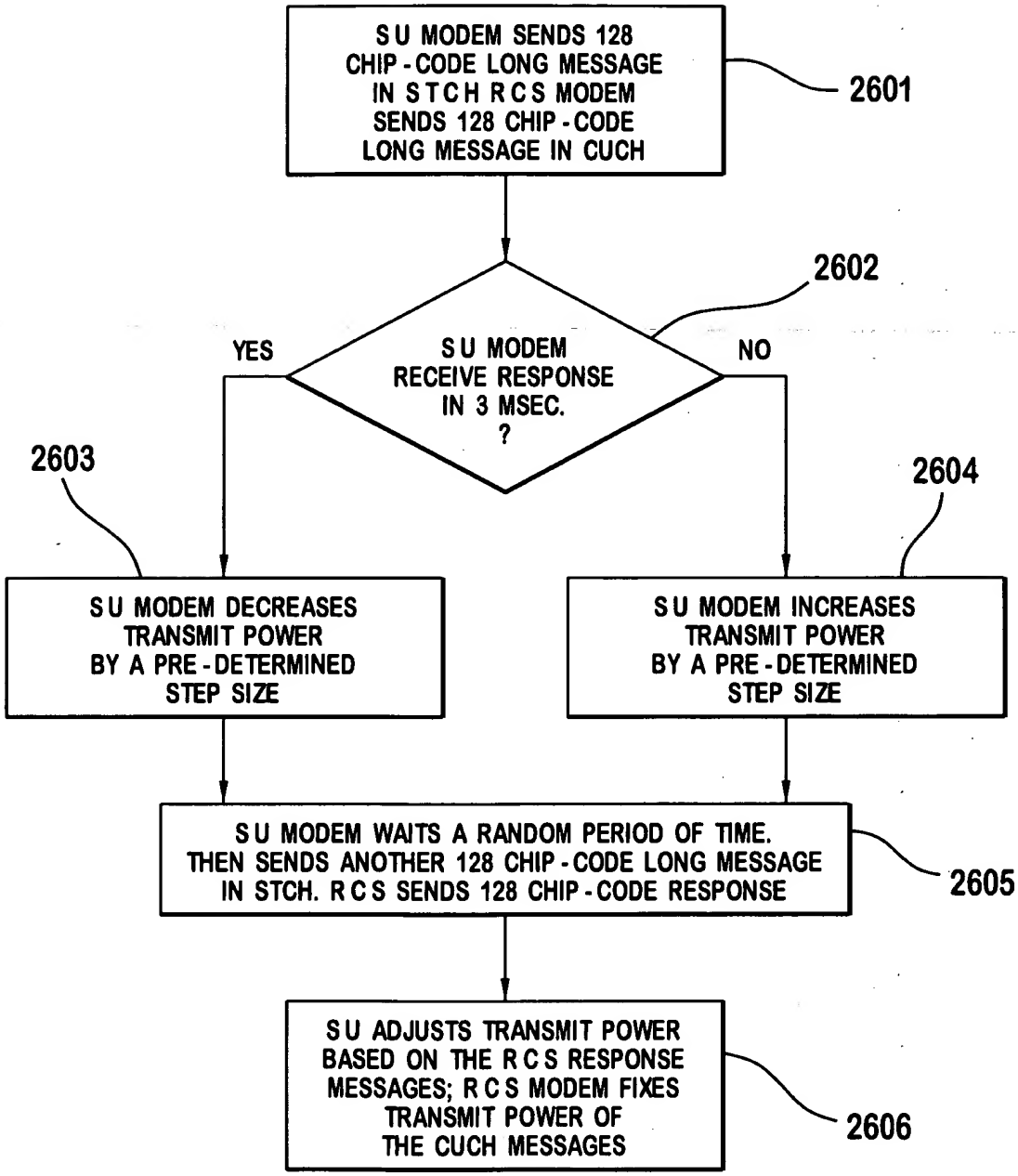


FIG. 26

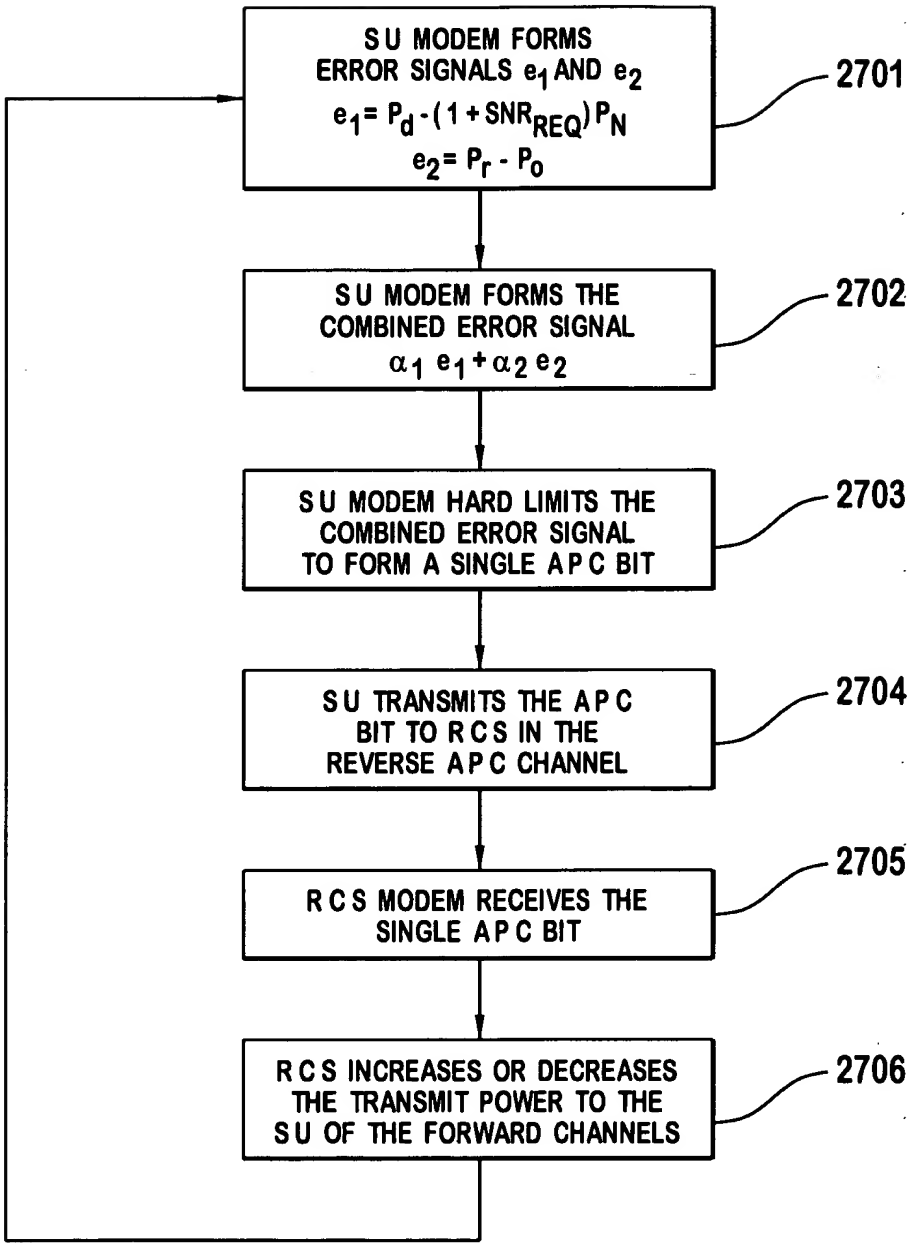


FIG. 27

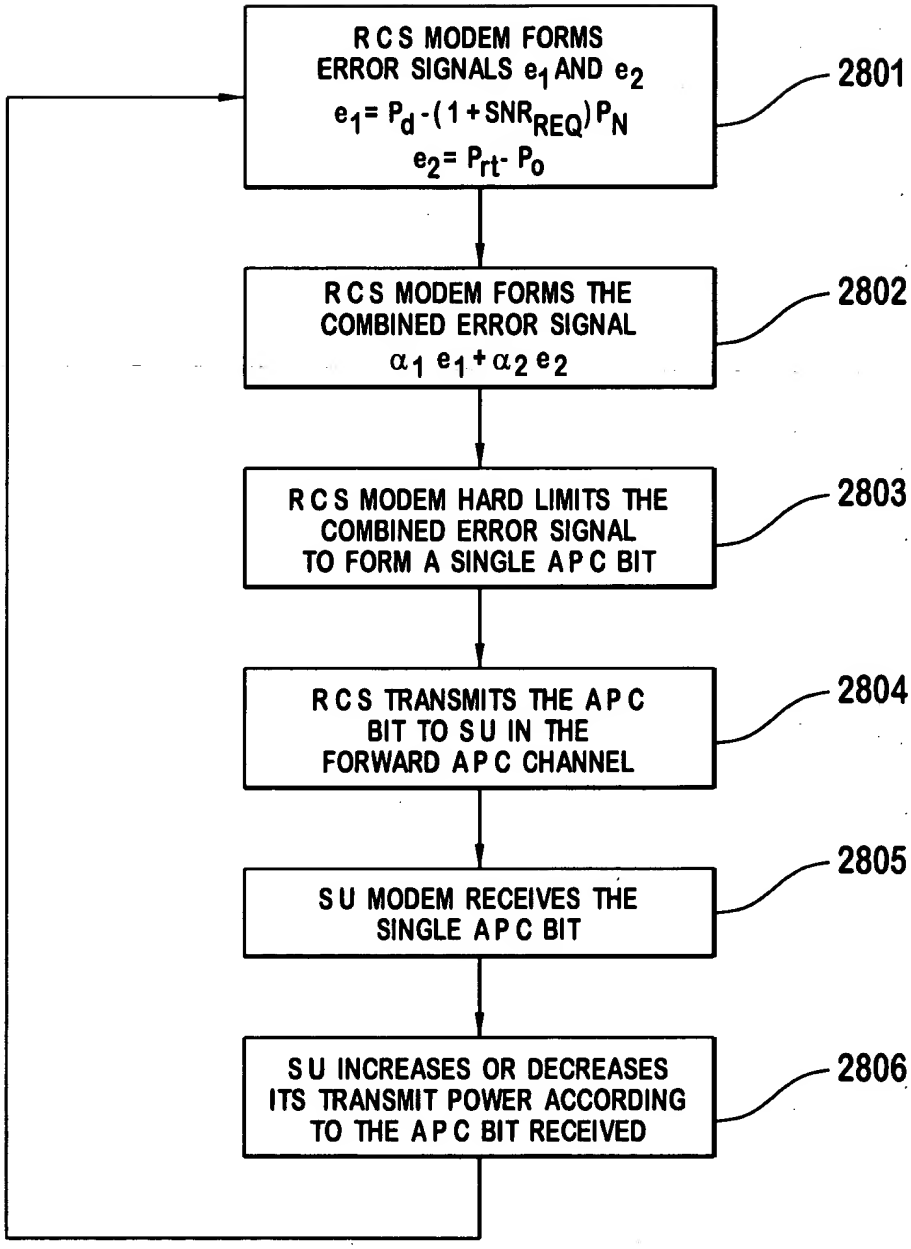


FIG. 28

FIG. 29A

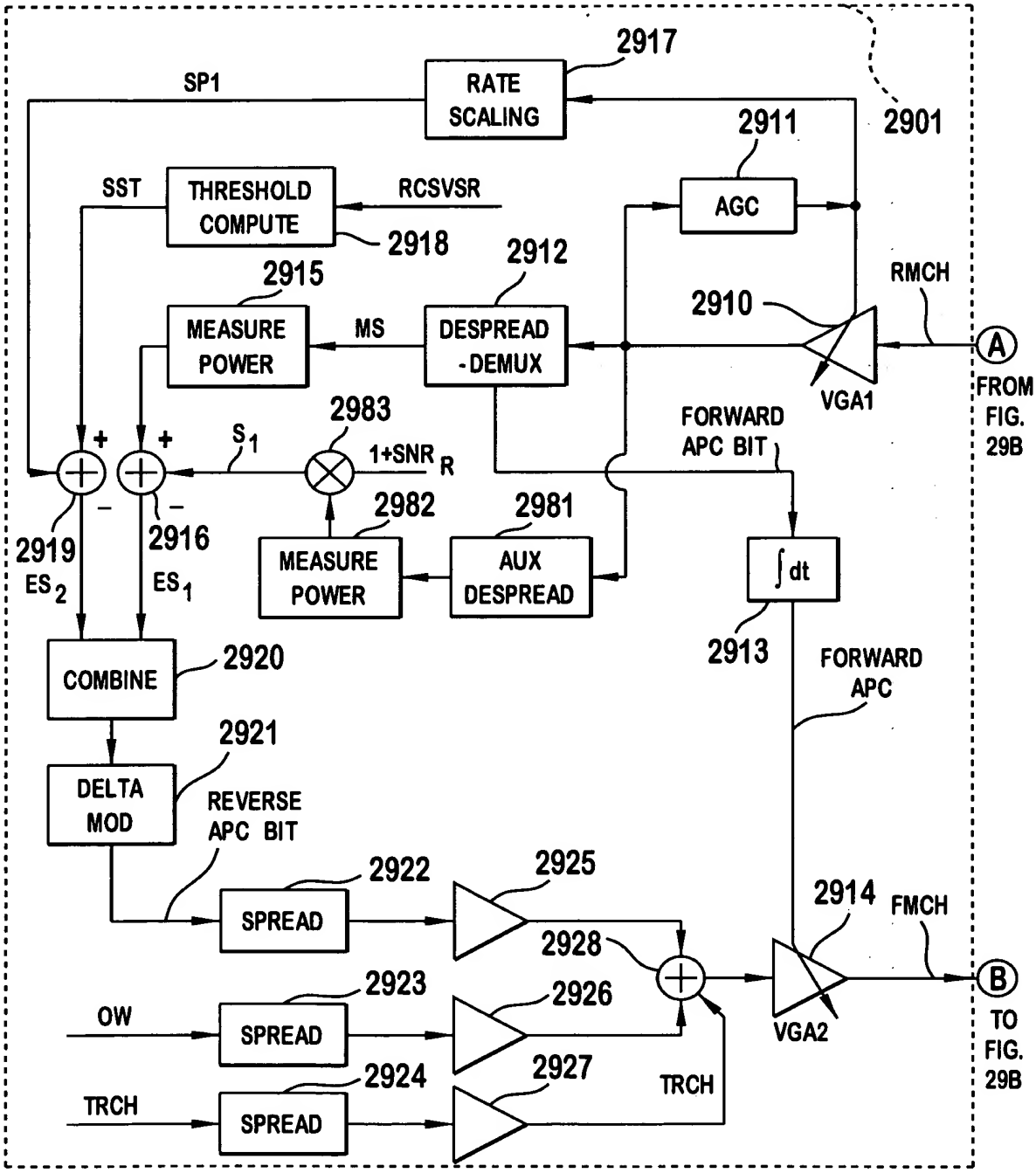


FIG. 29B

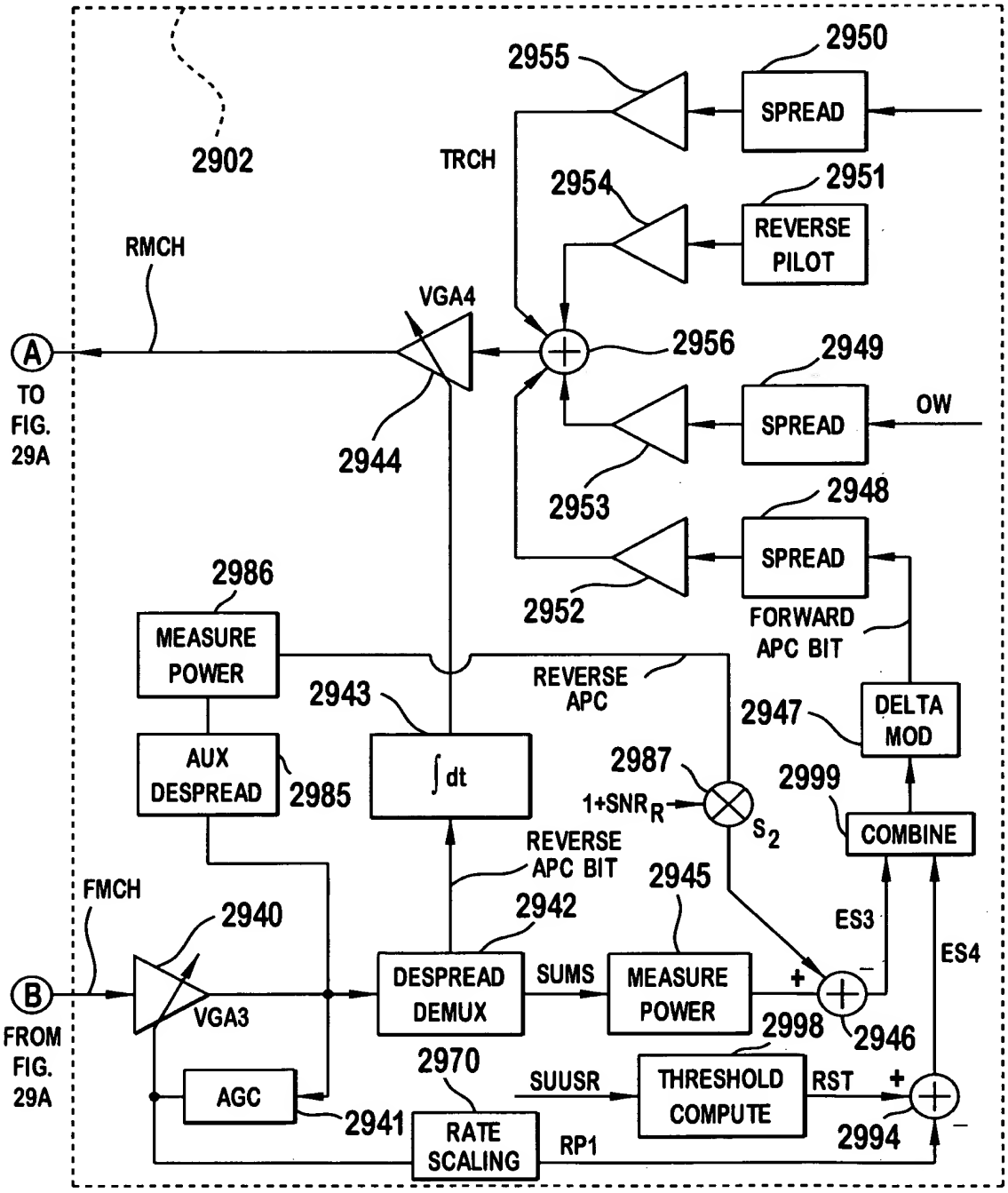


FIG. 30A

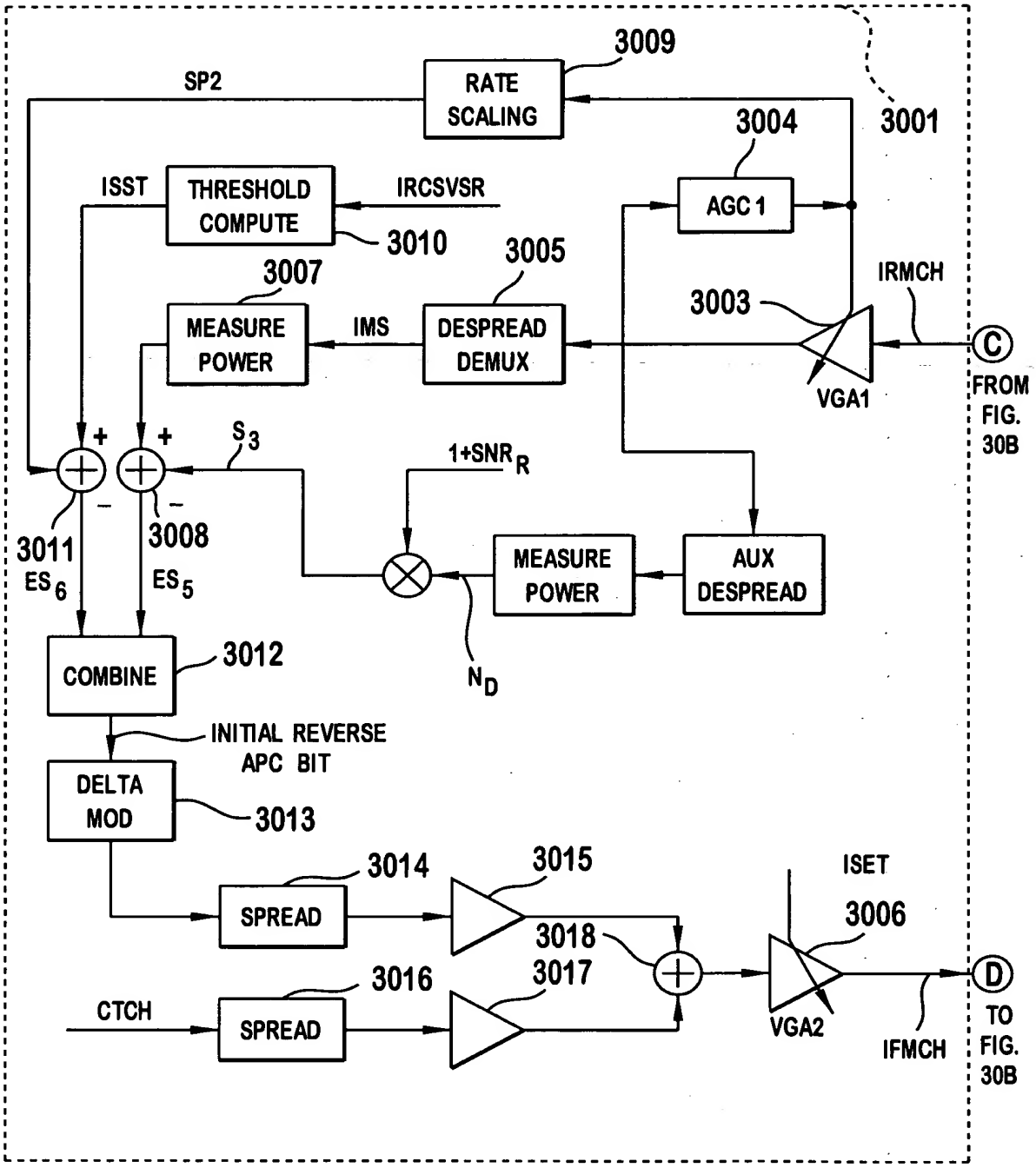


FIG. 30B

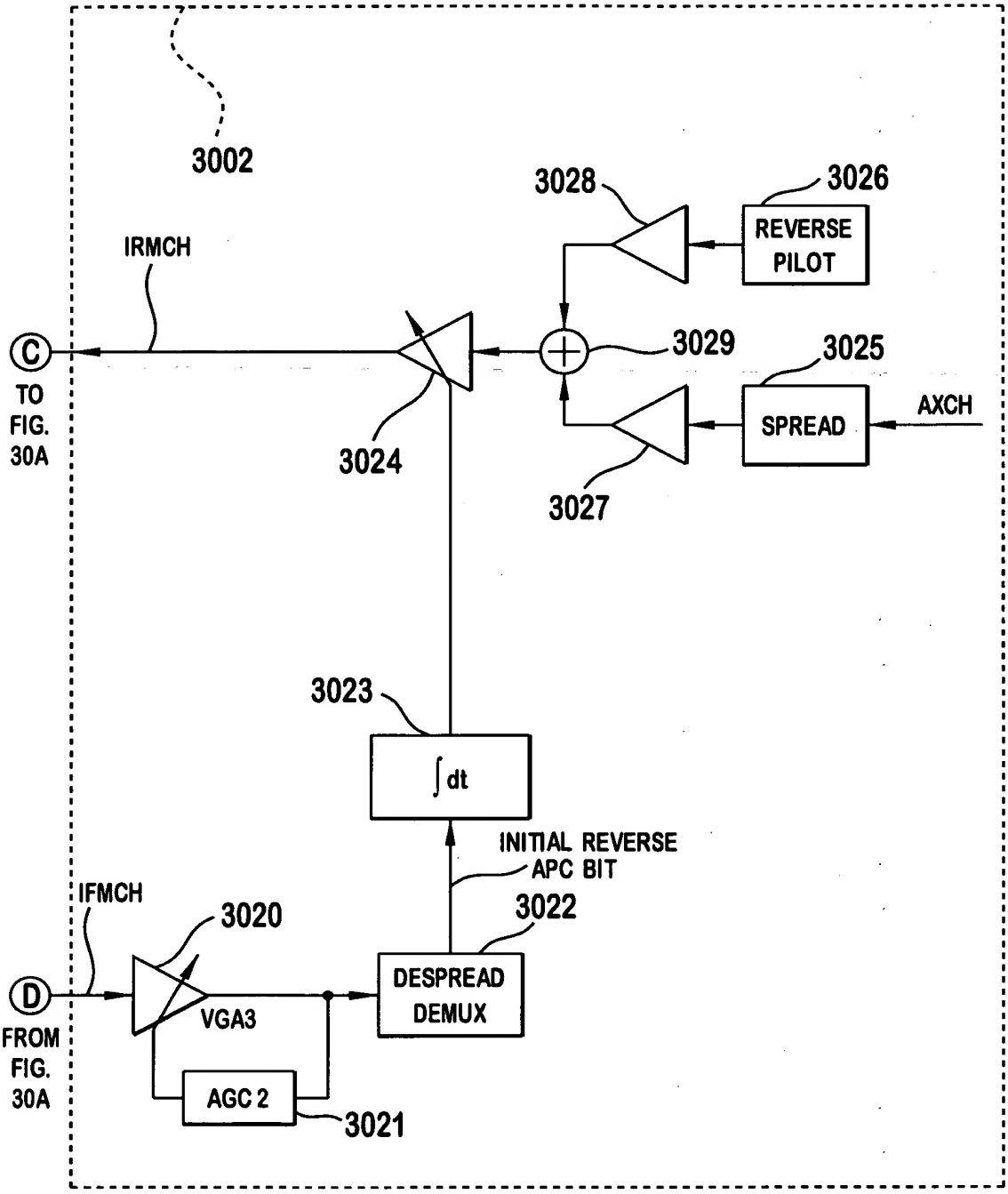


FIG. 31

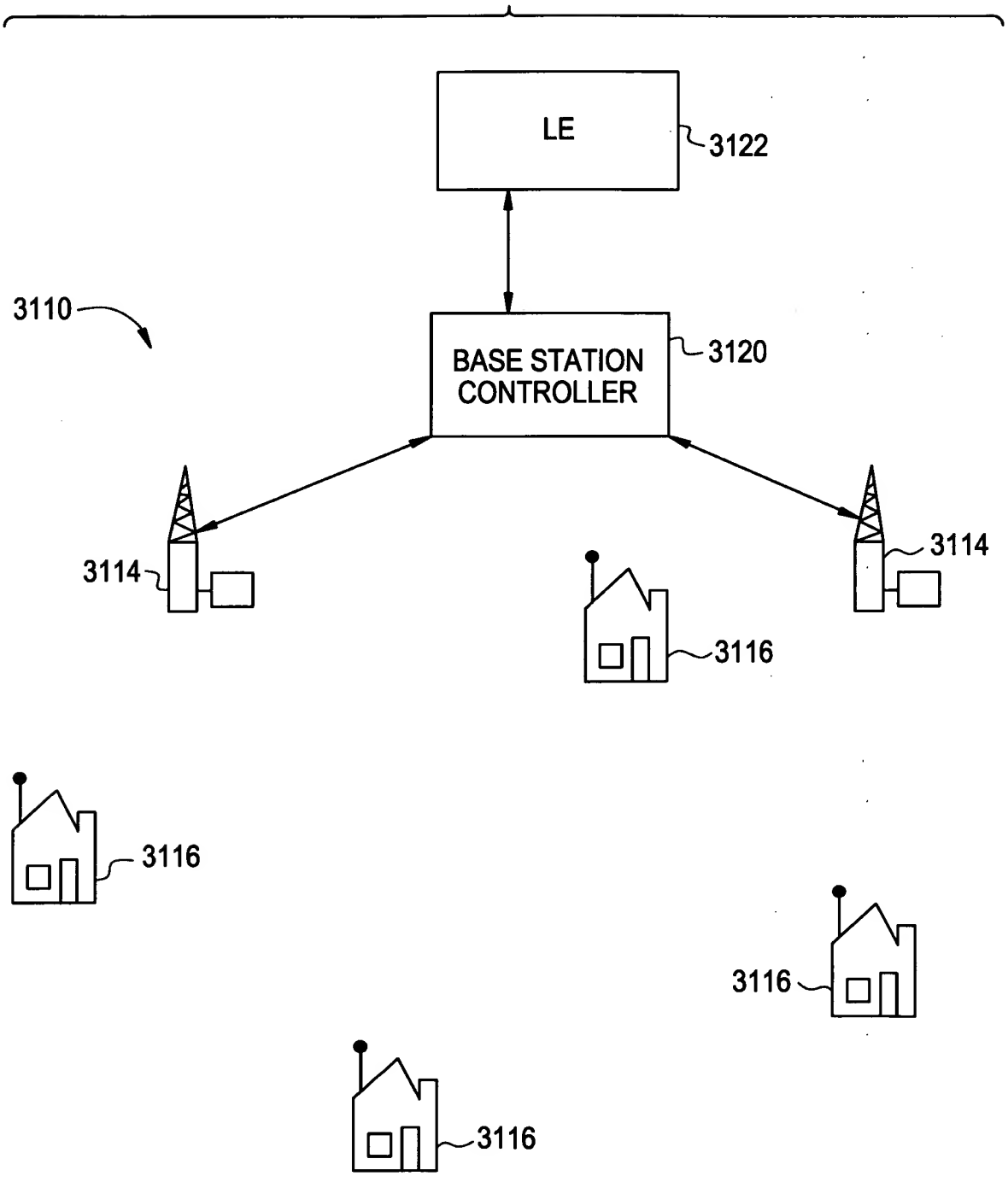


FIG. 32

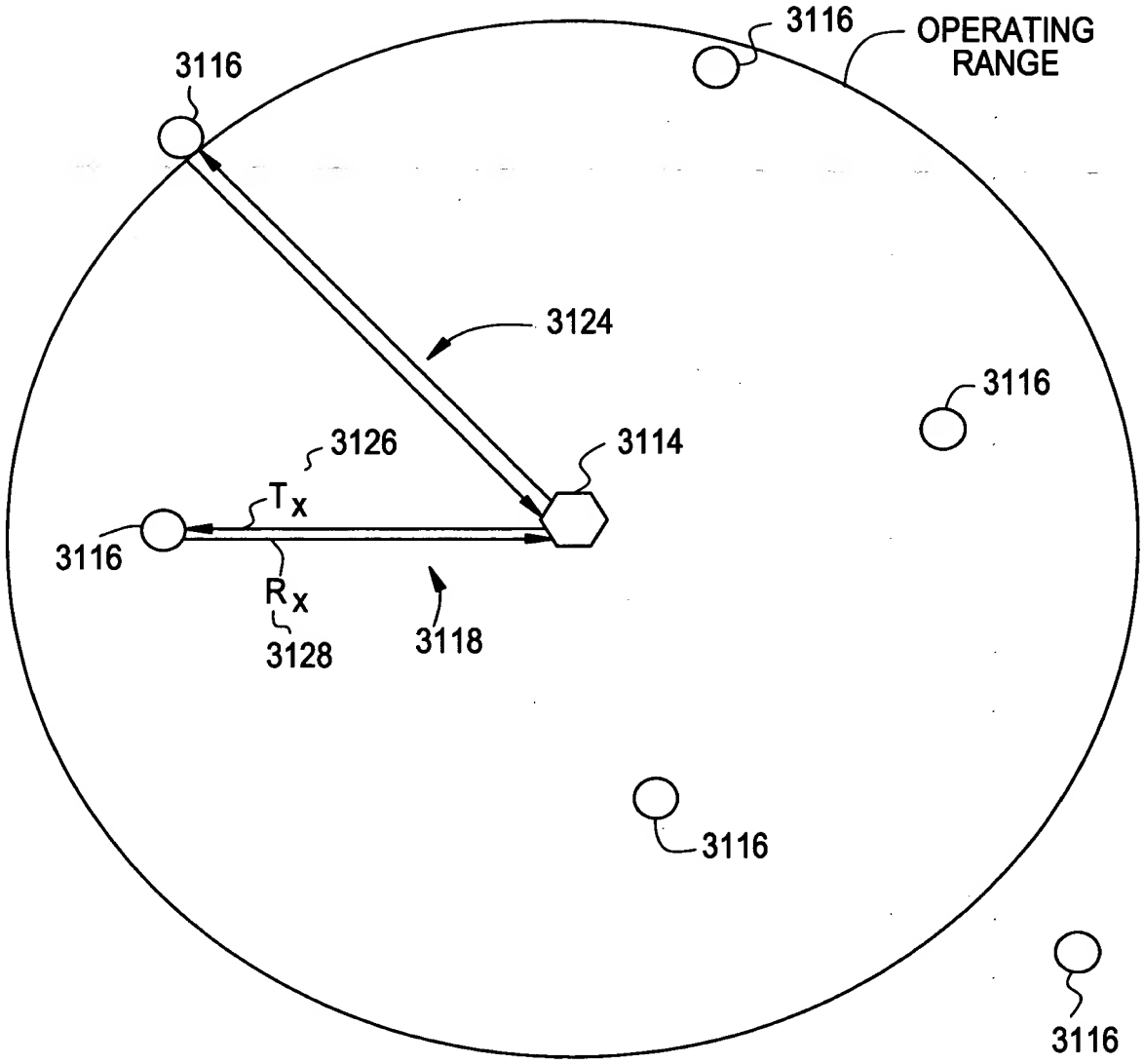


FIG. 33

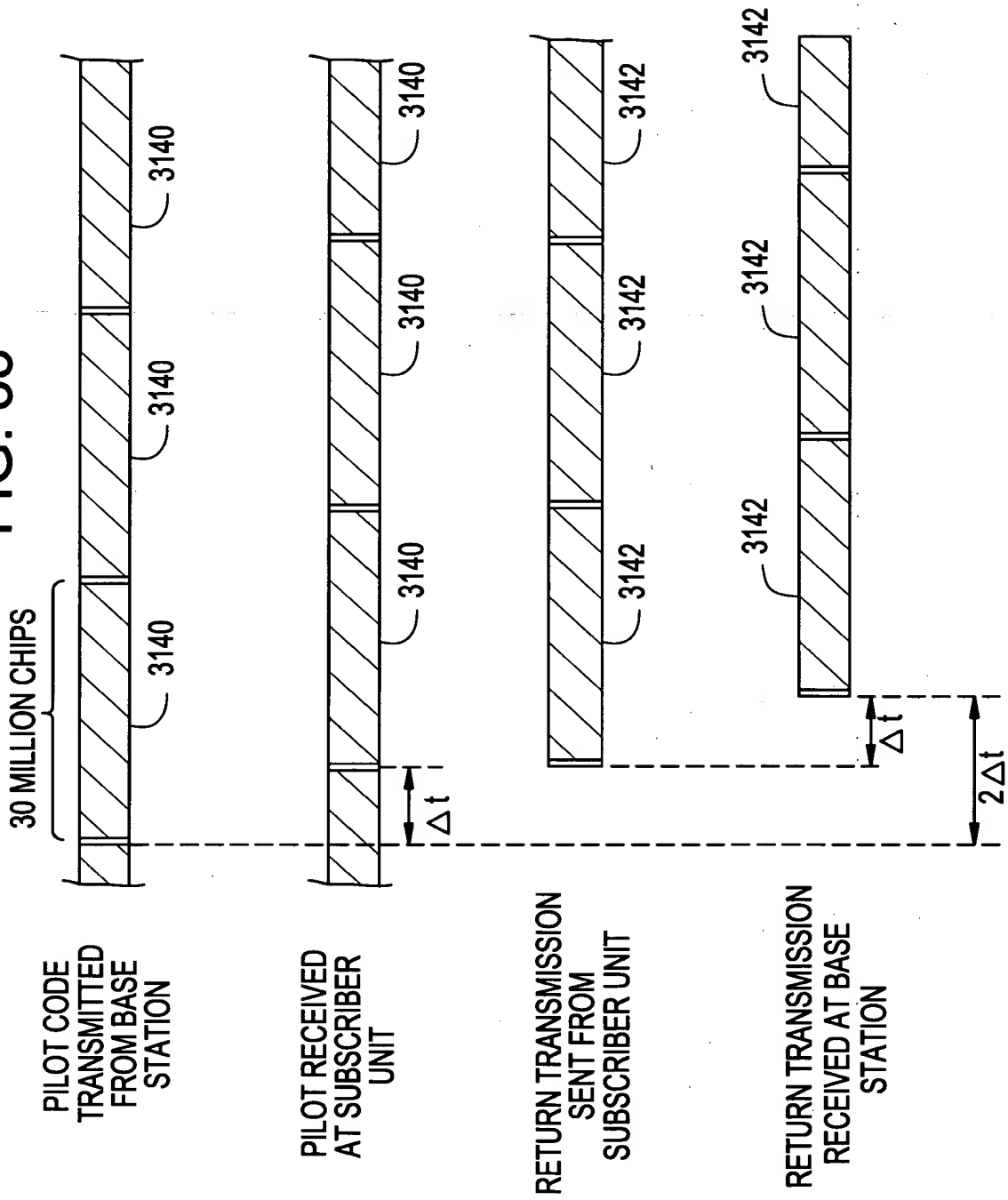


FIG. 34

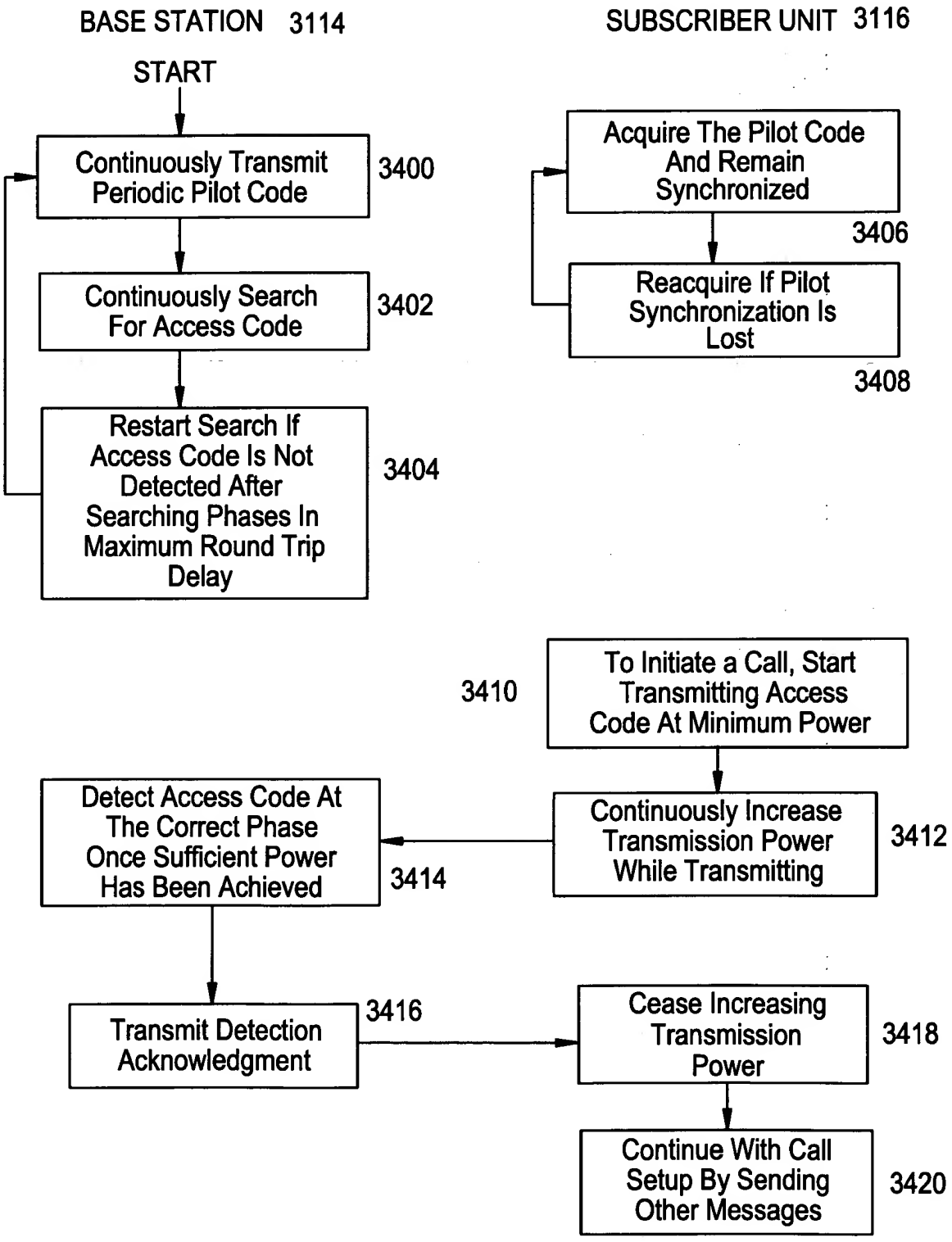


FIG. 35

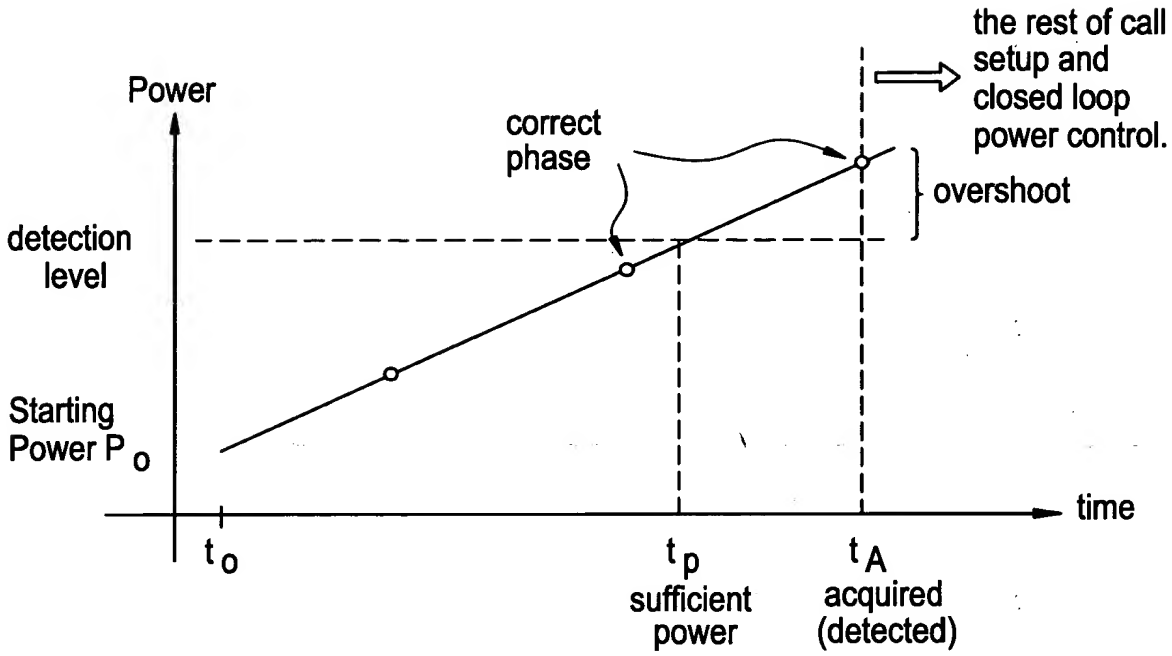


FIG. 37

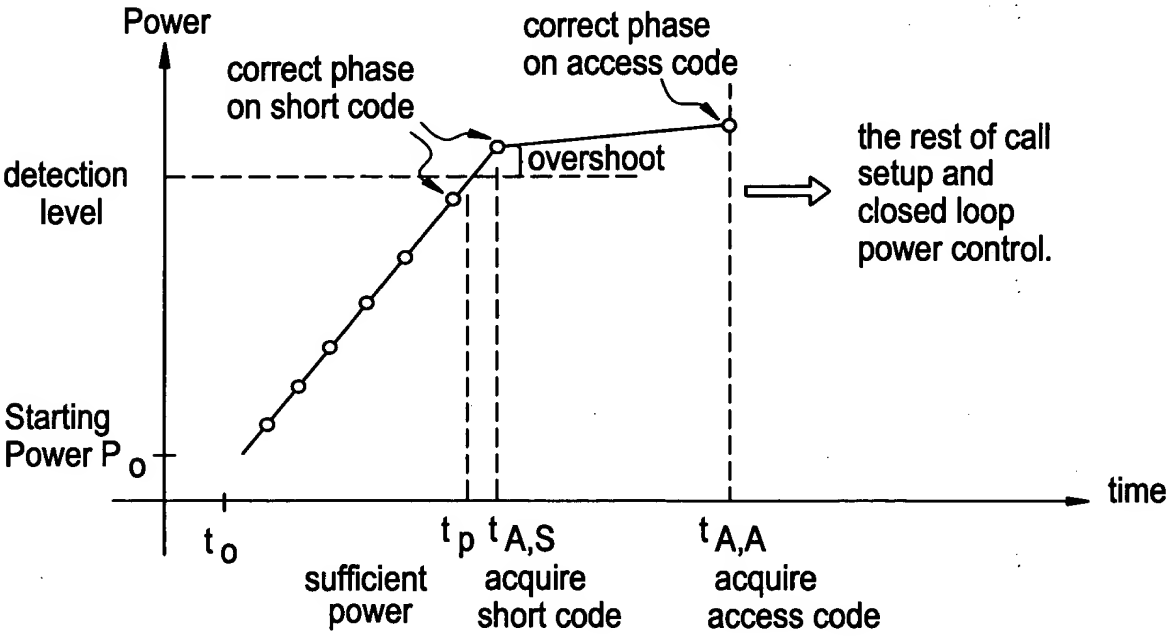


FIG. 36A

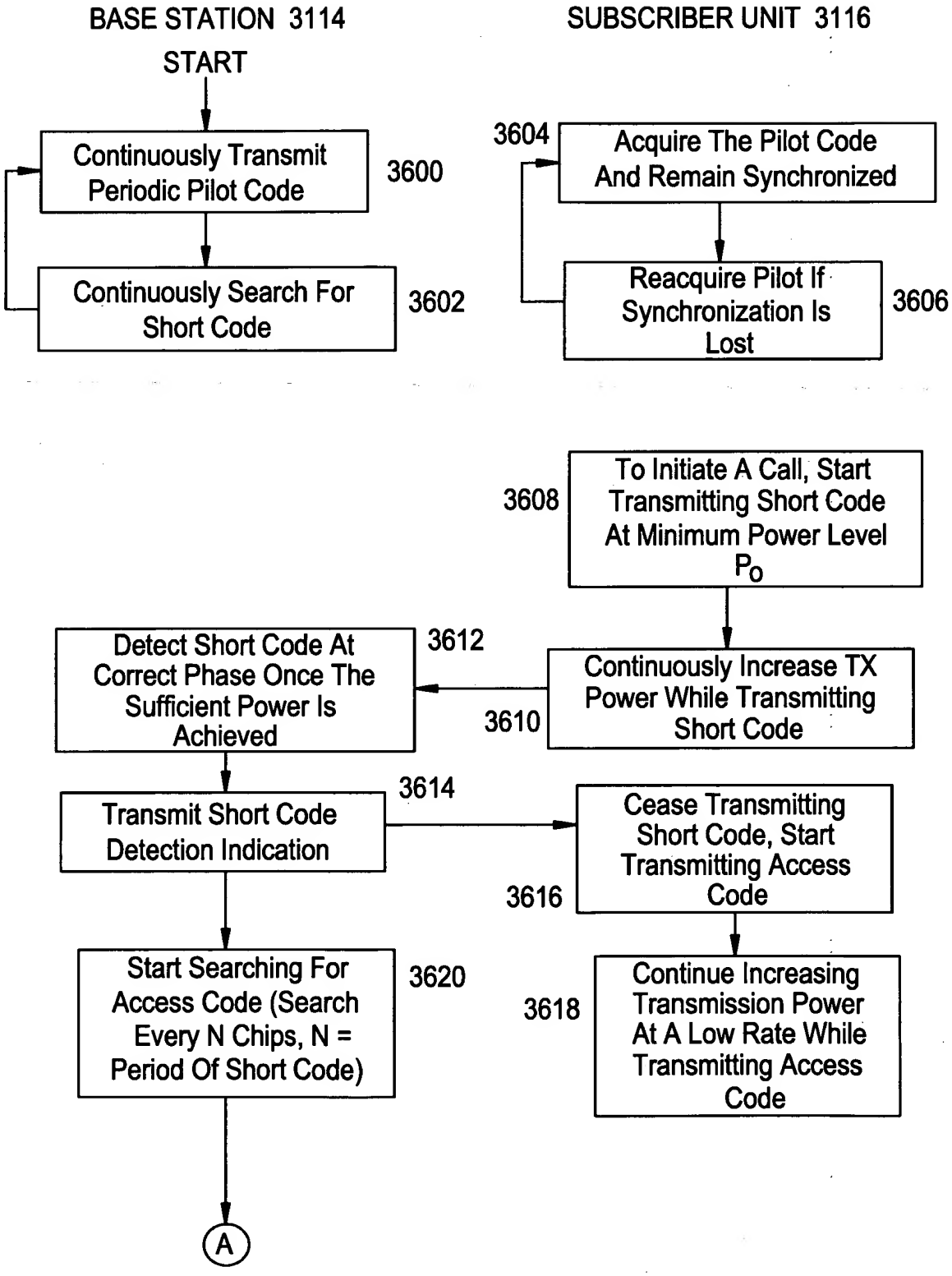


FIG. 36B

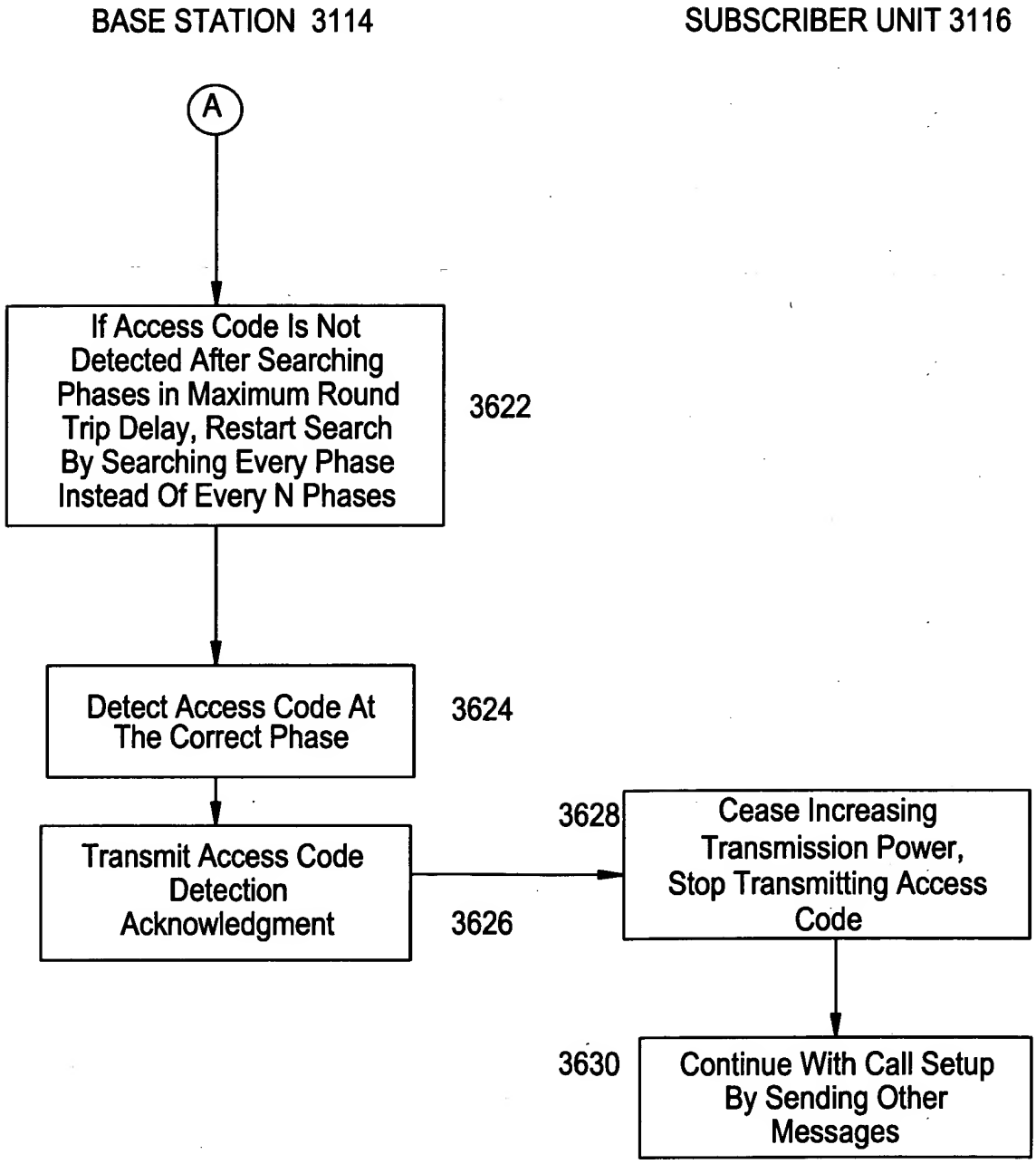


FIG. 38

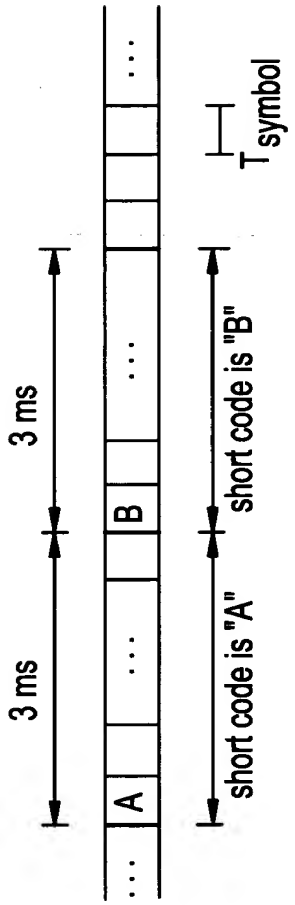


FIG. 39

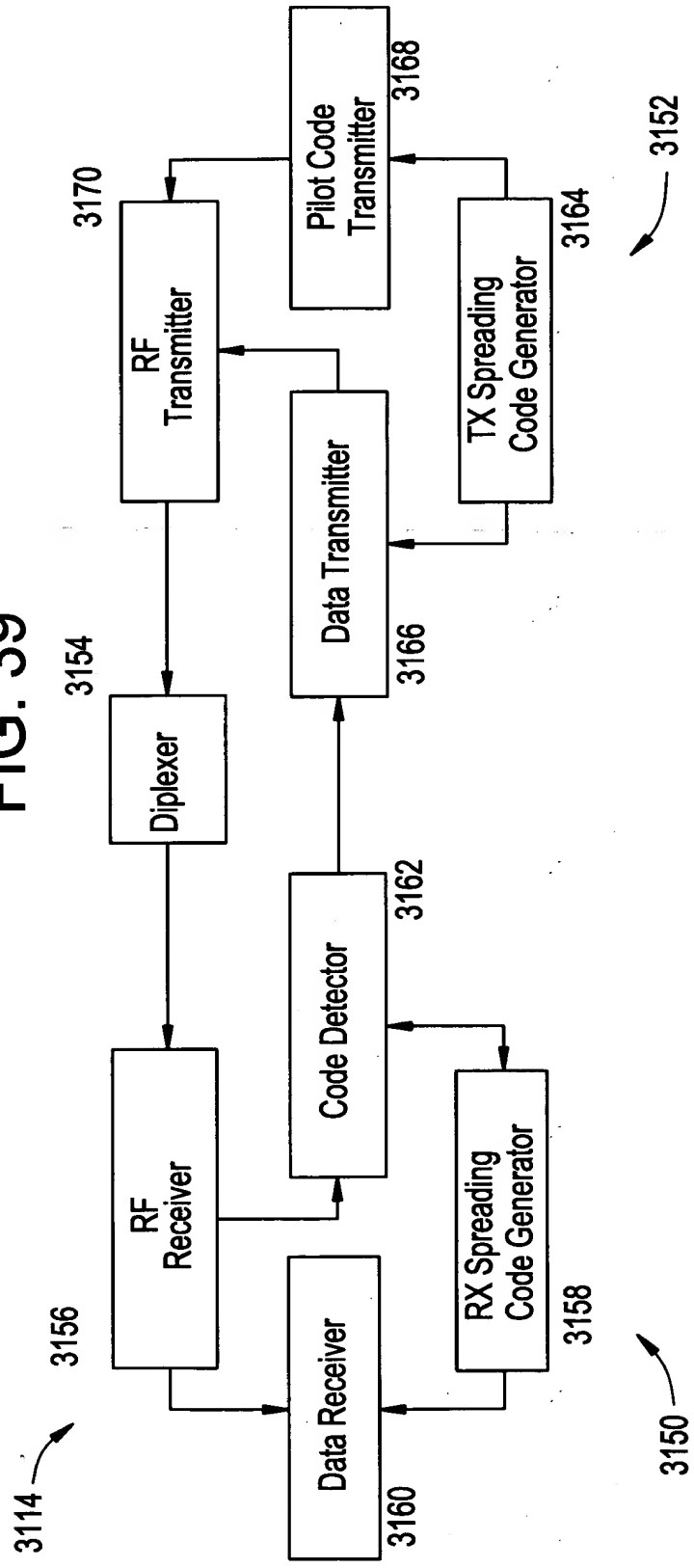


FIG. 40

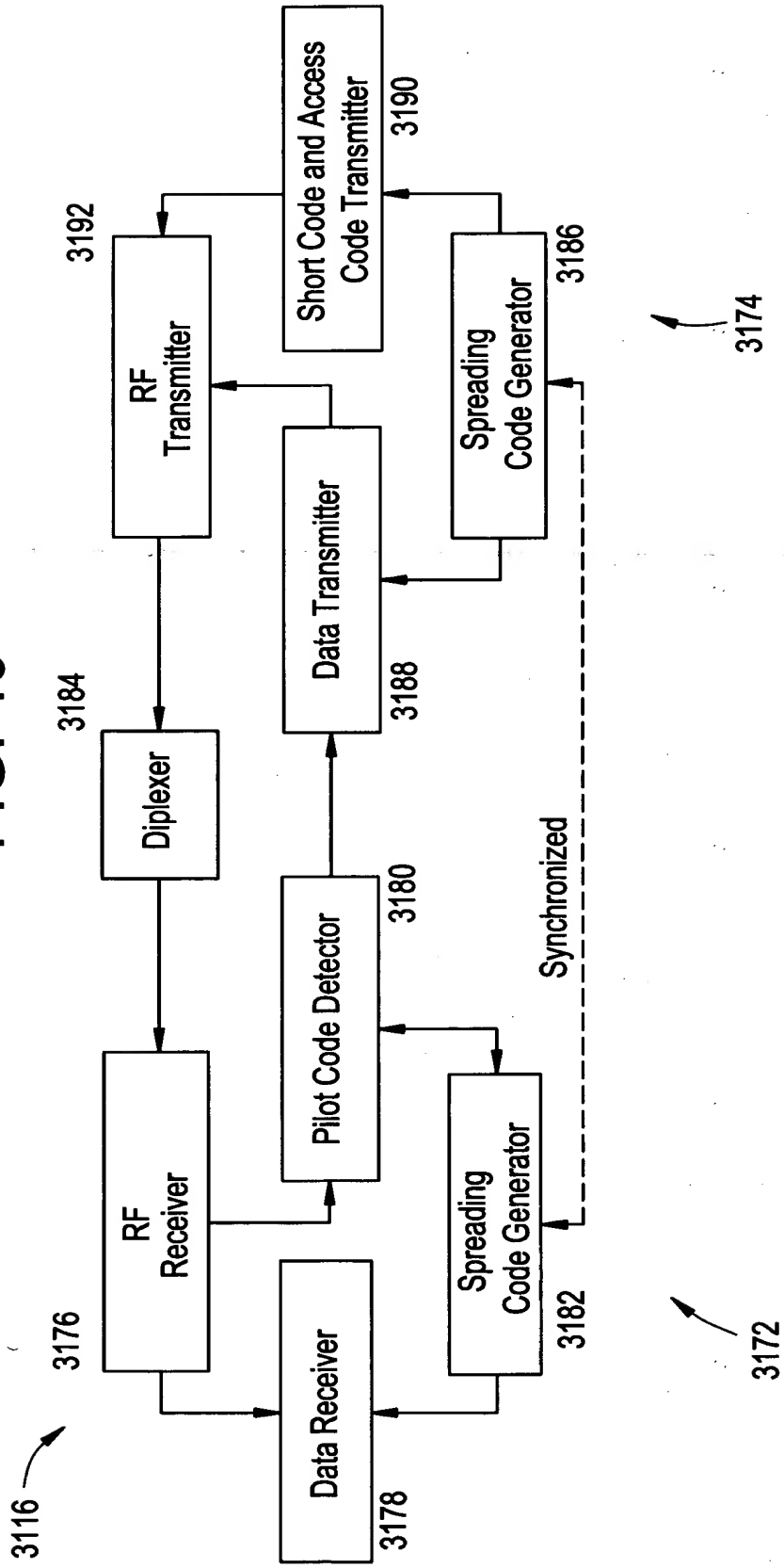


FIG. 41A

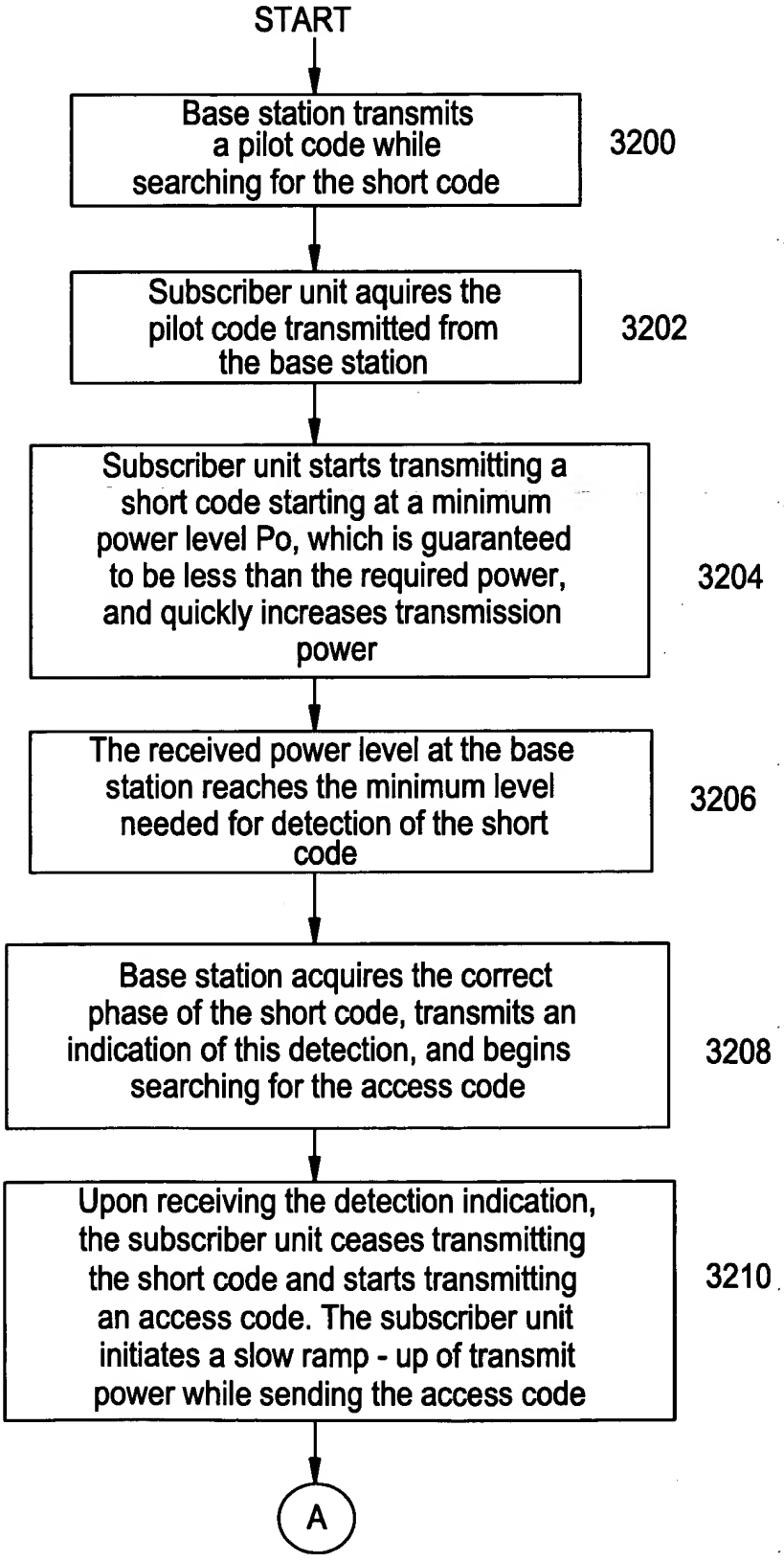


FIG. 41B

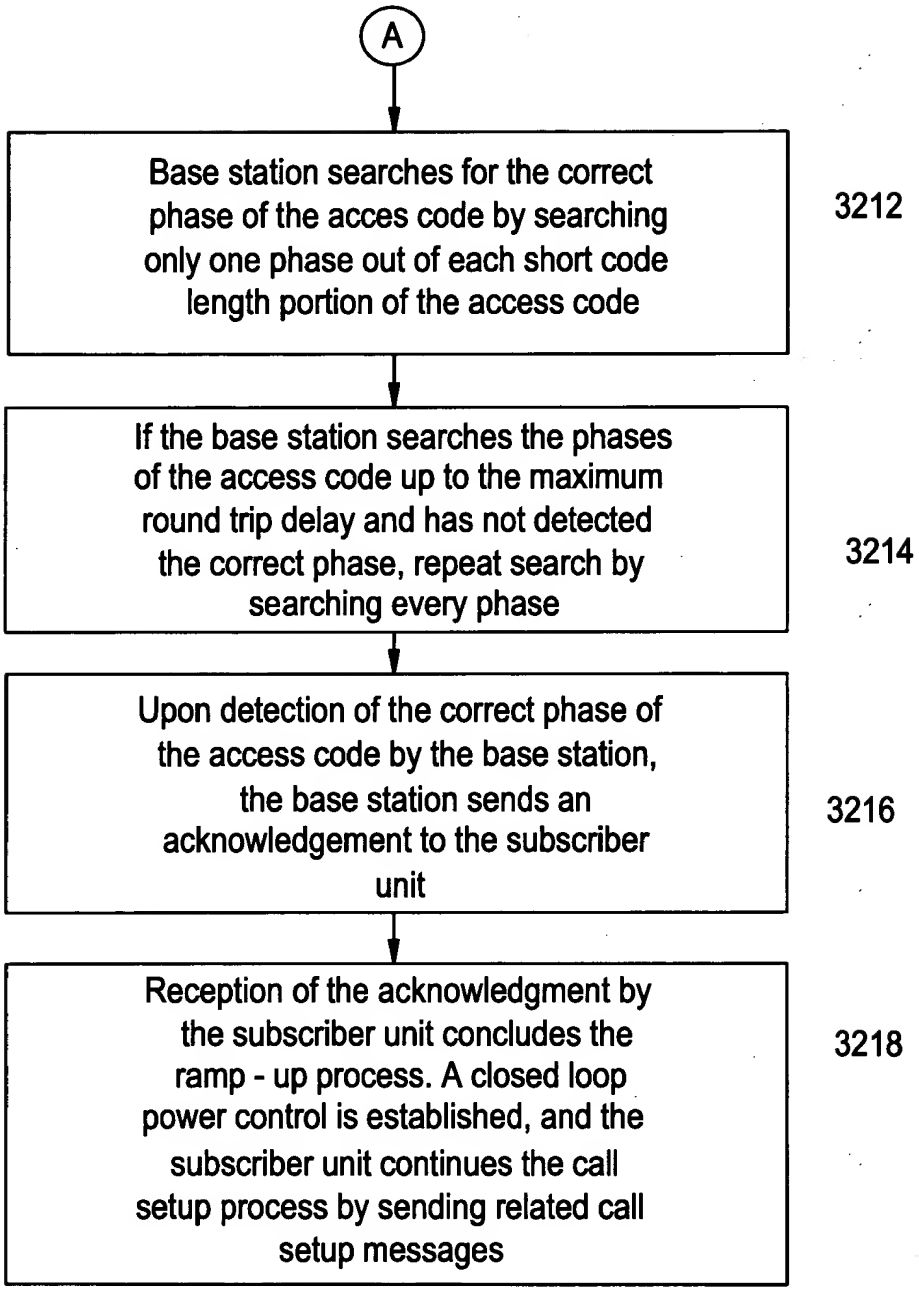


FIG. 42
PRIOR ART

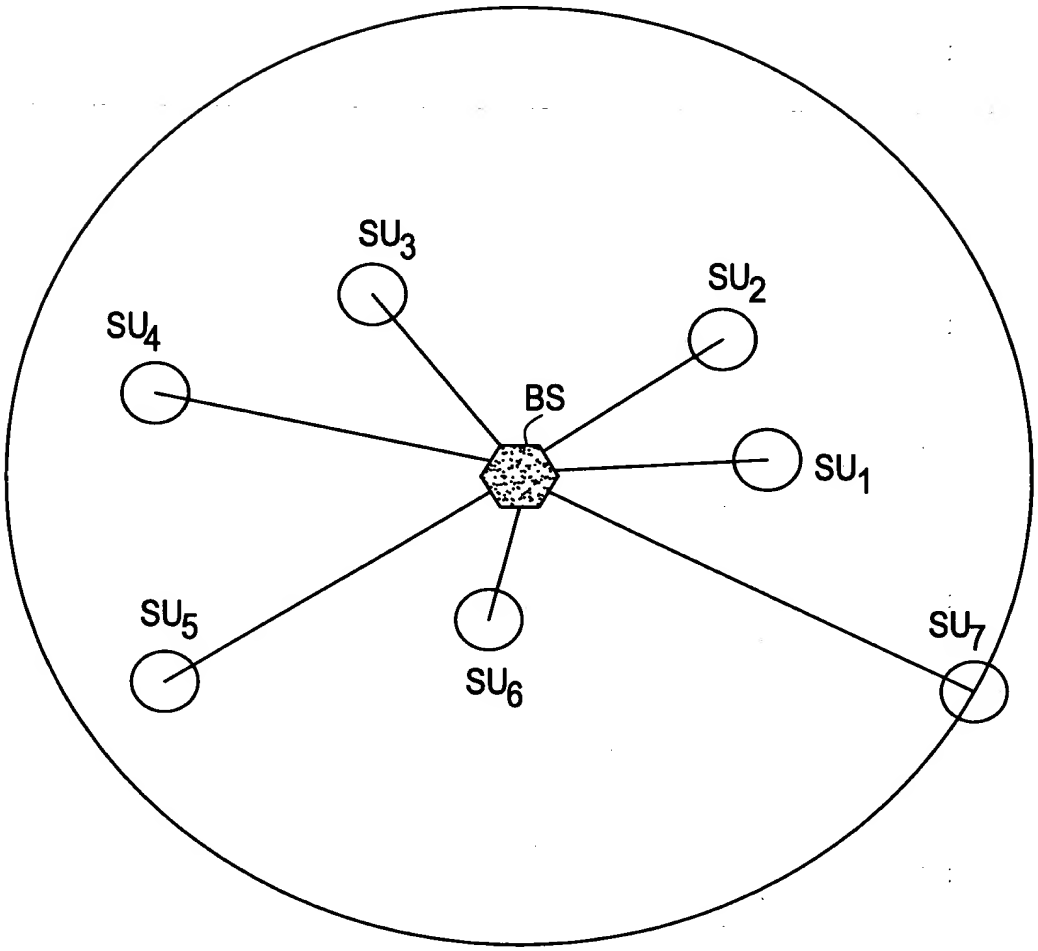


FIG. 43
PRIOR ART

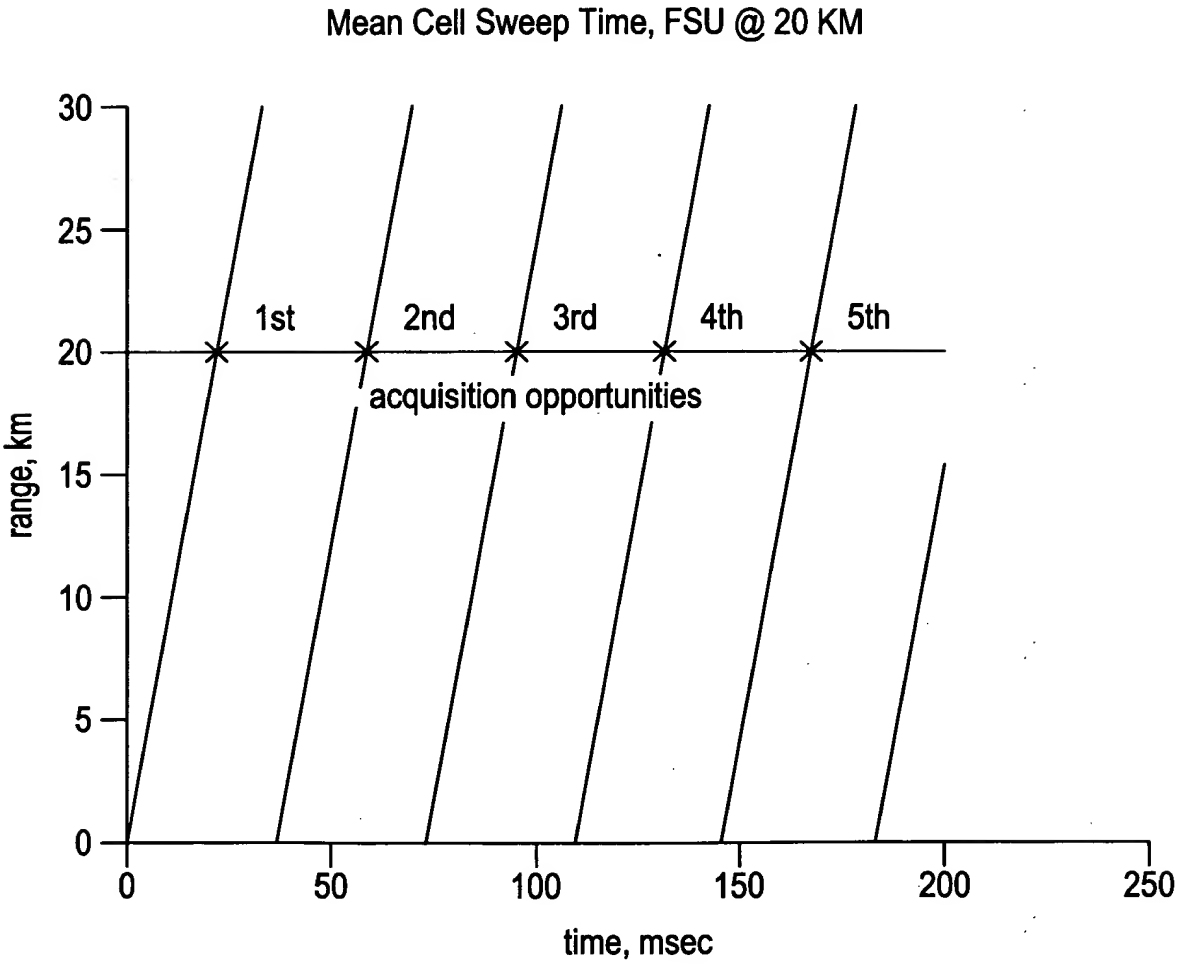


FIG. 44

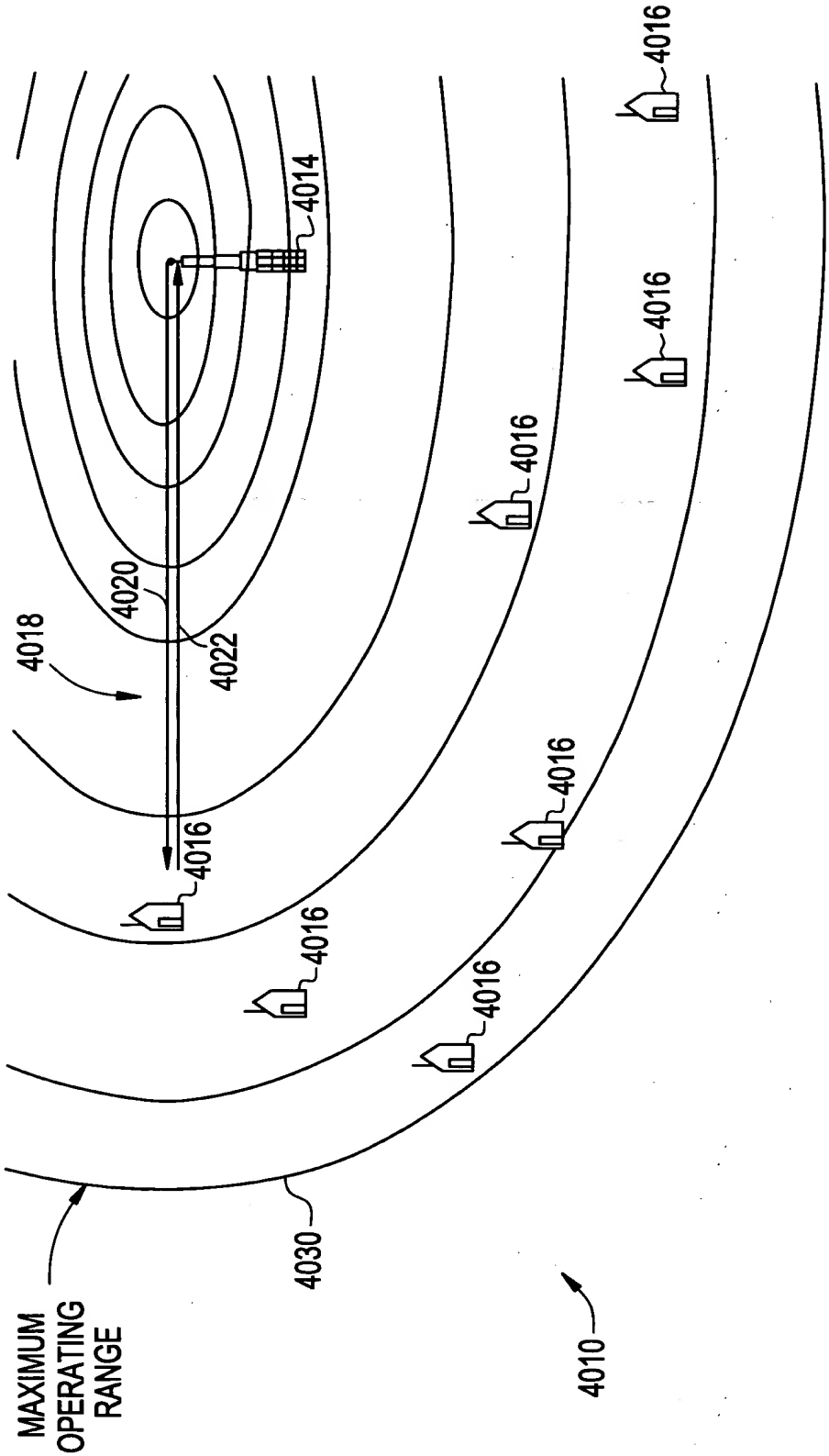


FIG. 45

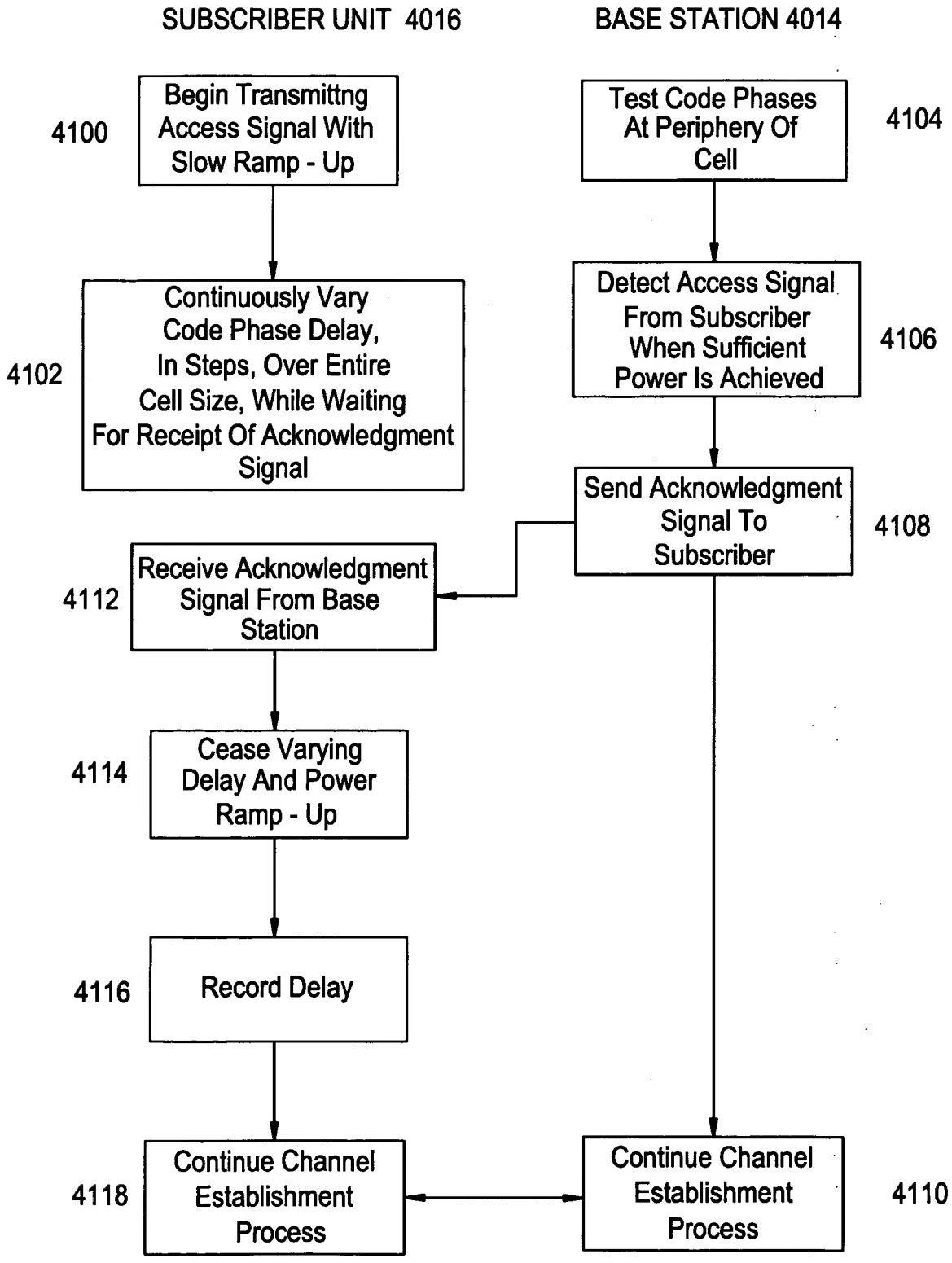


FIG. 46

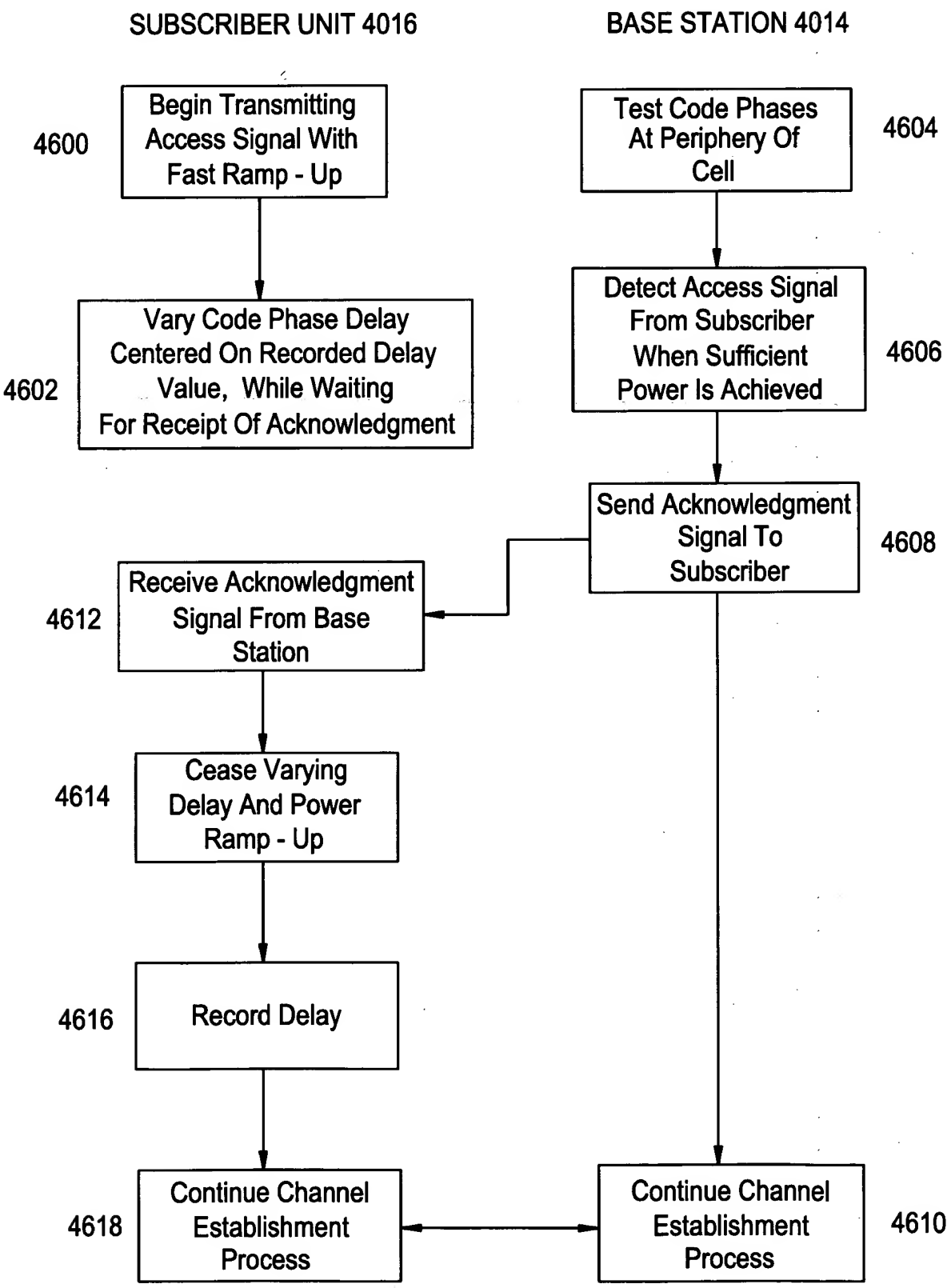


FIG. 47

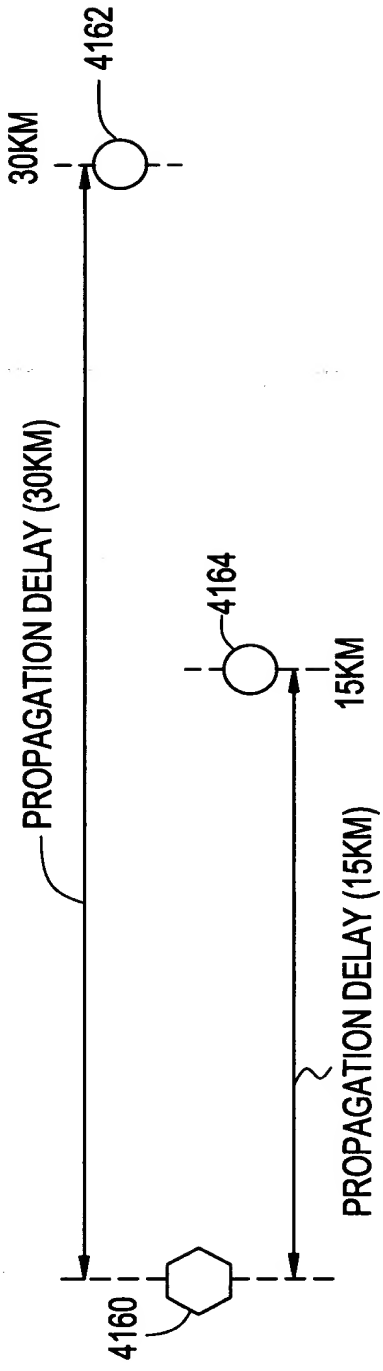


FIG. 48

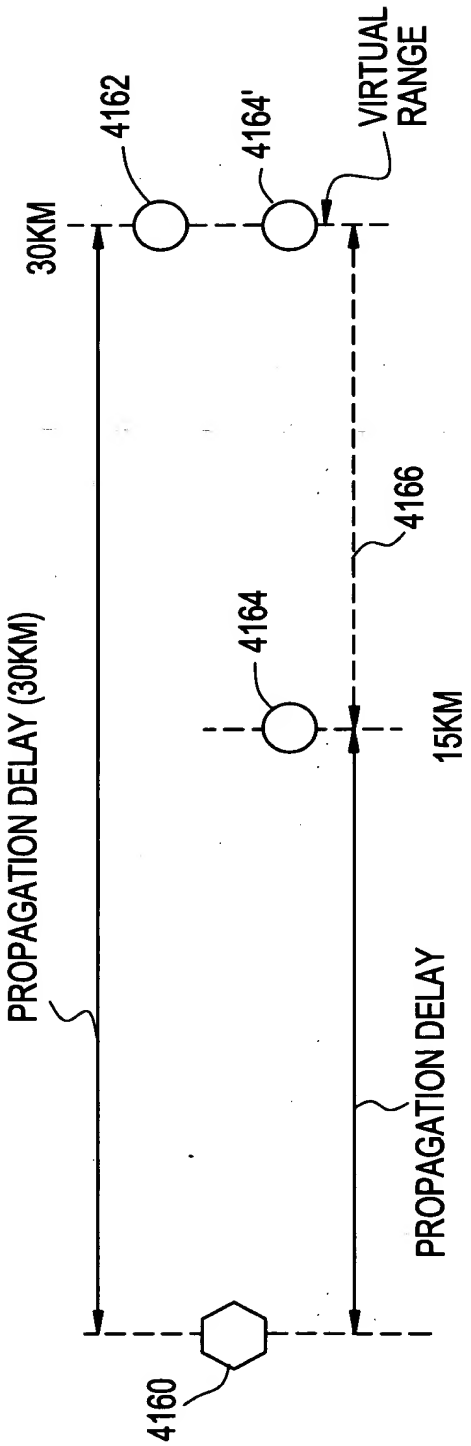


FIG. 49

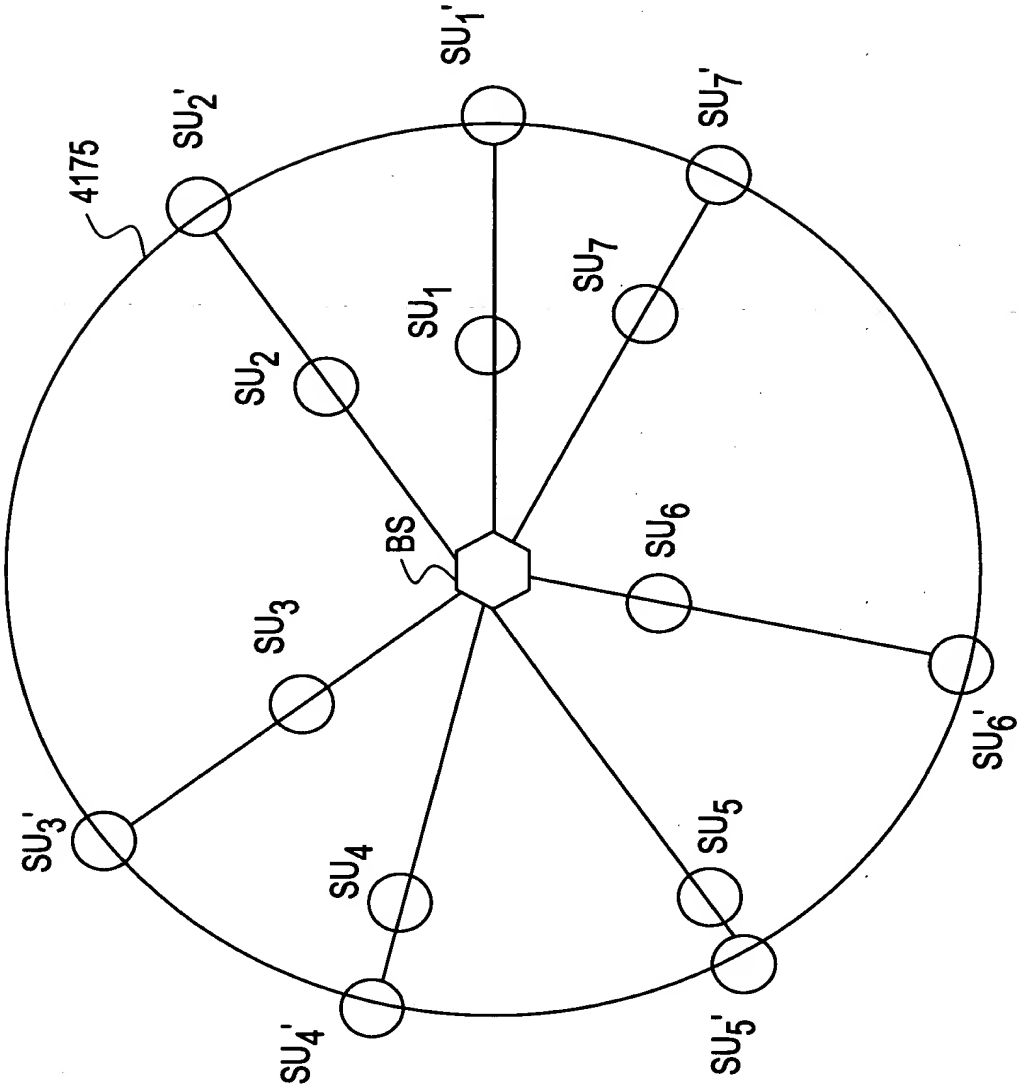


FIG. 50

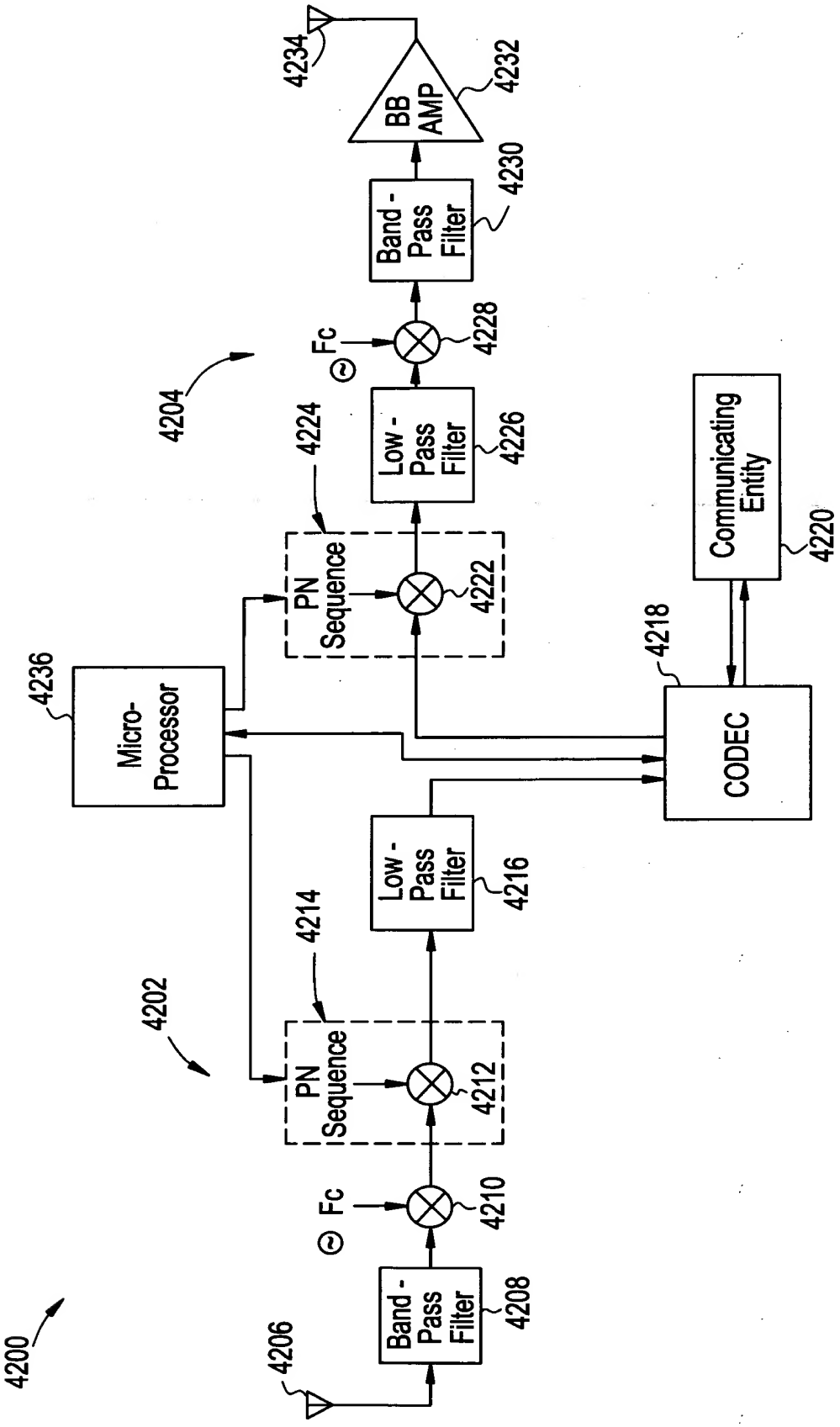


FIG. 51

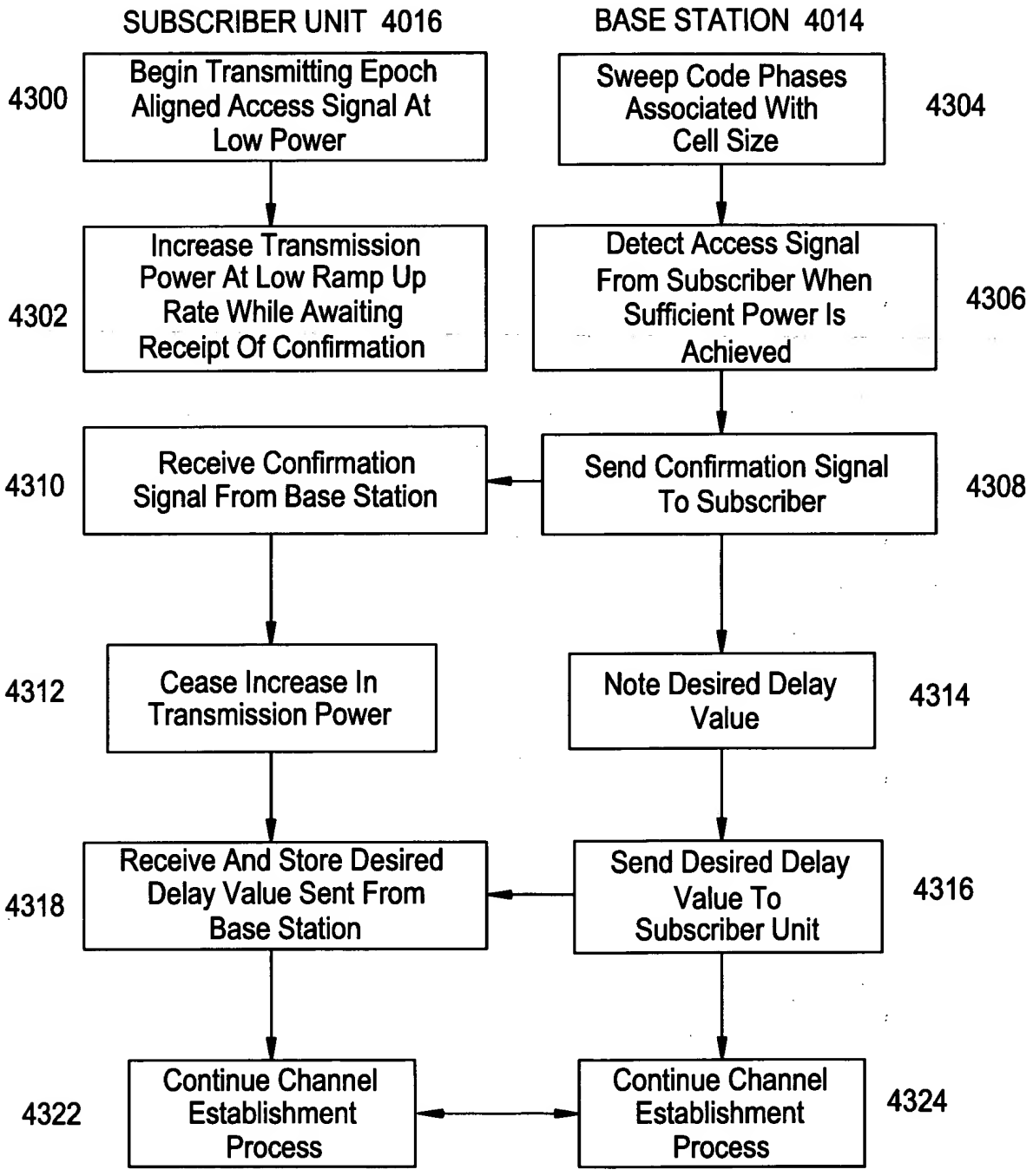


FIG. 52

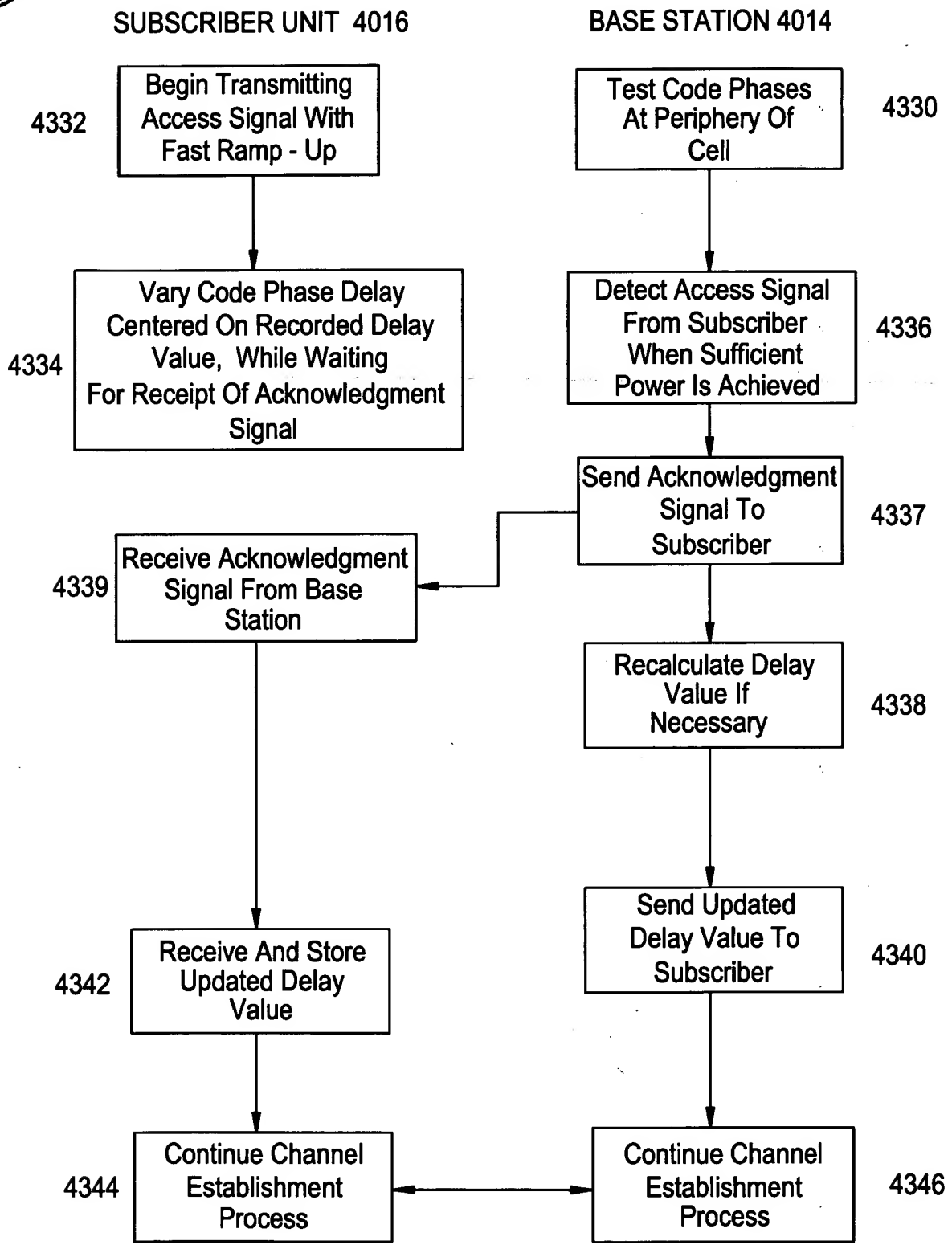
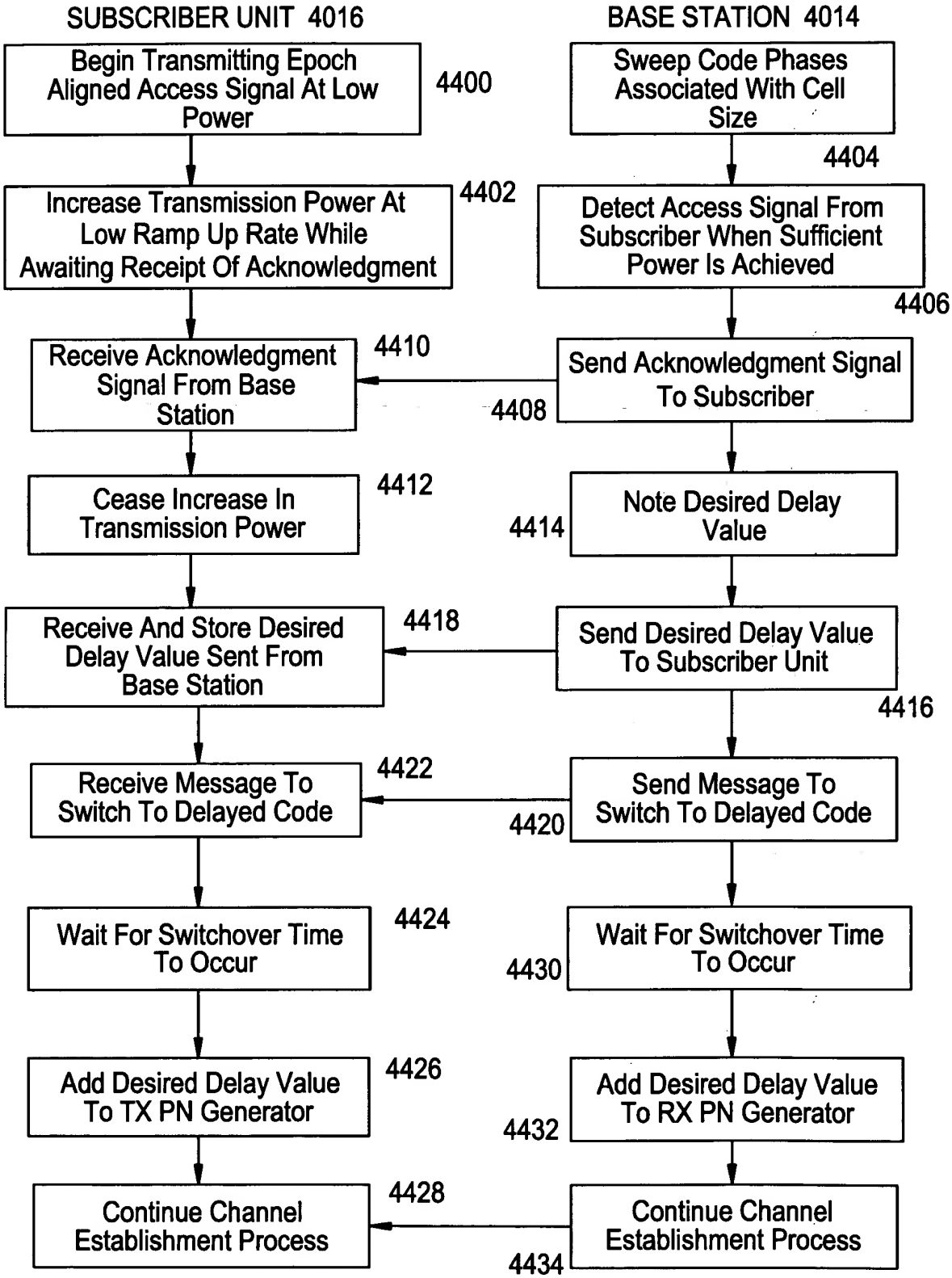


FIG. 53



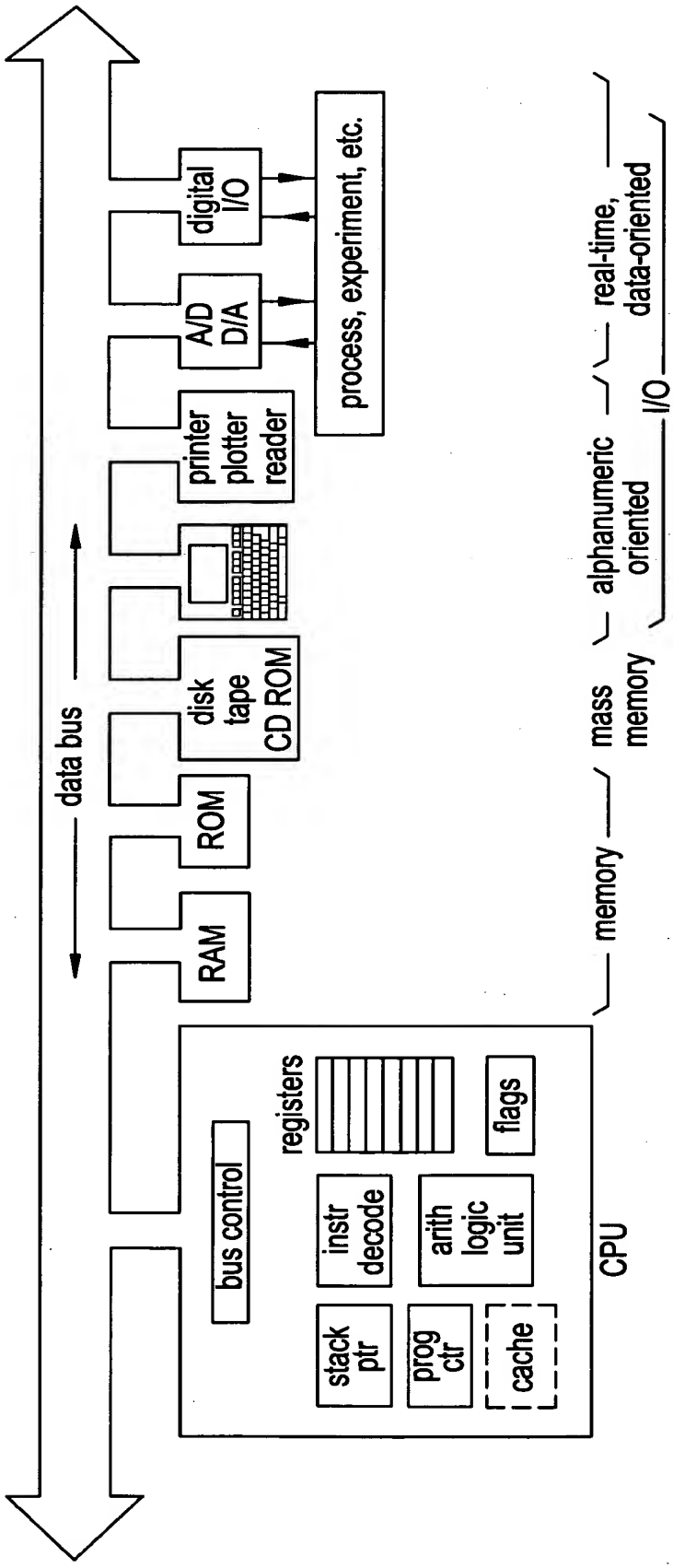


FIG. 54
PRIOR ART

FIG. 55
PRIOR ART

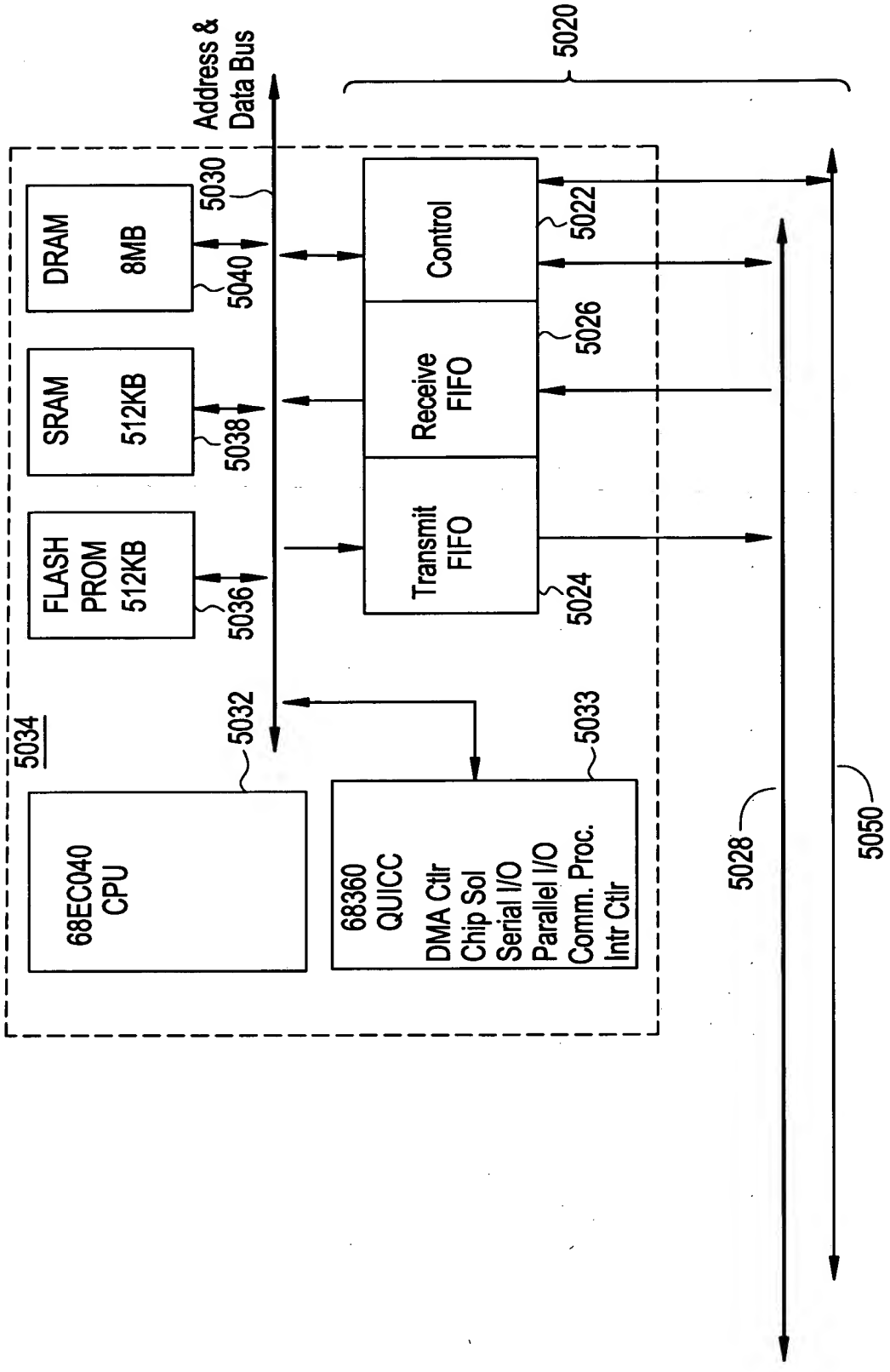
BUS	RAW bandwidth (Mbyte/s)	Data width	Address width	Block xfer?	MUXed data/adr?	Multimaster?	Sync/Async	IRQ Lines a	Drivers	Connector b	Comments
STD bus		8	16	–	–	–	S	1	TTL	CE	controller-type applications
PC/XT	1.2	8	20	–	–	–	S	5E	TTL	CE	original IBM PC & compatibles
PC/AT	5.3	8,16	20,24	–	–	(c)	S	10E	TTL	CE	accepts PC/XT cards
EISA	33	8,16,32	20,24,32	•	–	•	S	11P	TTL	CE	enhanced PC/AT; auto-configure
MicroChannel	20	8,16,(32)	24,(32)	•	–	•	A	11	TTL	CE	IBM PS/2; auto-configure
Q - bus	2	16	22	•	•	•	A	4	(d)	CE	LSI-11,μVAX-I,II;daisy-chained IACK
Multibus I	10	8,16	20,24	–	–	•	A	8	TTL	CE	Intel; SUN-I and others
CAMAC	3	24	9	•	–	–	S	L	TTL/OC	CE	data acqusition & control bus
VAX BI	13.3	8,16,24,32	32	•	•	•	S	4	TTL	ZIF	VAX 780, 8600 series; parity
Multibus II	40	8,16,24,32	16,32	•	•	•	S	M	TTL	DIN	parity; 40MB/s for blk xfer, 20M otherwise
NuBus	40	32	32	•	•	•	S	M	TTL	DIN	Macintosh II adds 1 dedicated INT per slot; ""
VME	40	8,16,32	16,24,32	•	–	•	A	7	TTL	DIN	daisy-chained IACK; SUN-3
Futurebus	120					•	A	–	(d)		
Fastbus	160	32	32	•	•	•	A	M	ECL	H	communication across many crates

(a) E-edge-sensitive;L-LAM ("look at me");M-"int" via bus mastership;
P-programmable edge-or level-sensitive interrupts.

(b) CE-card-edge; DIN-2-part "Eurocard" 96-pin connector;
H-high density 2-part conn. (c) almost. (d) National Semi special.

REPLACEMENT SHEET

FIG. 56



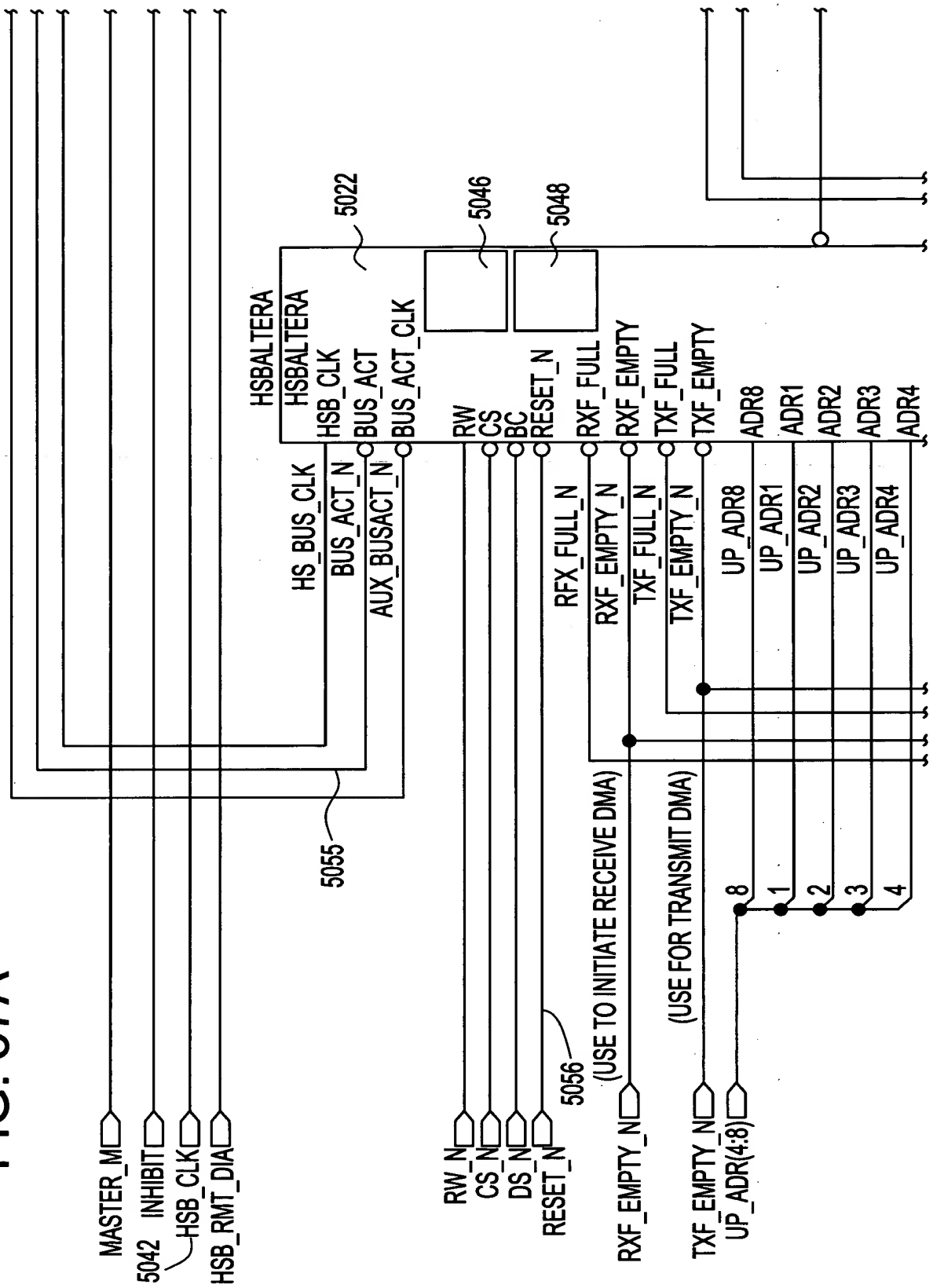
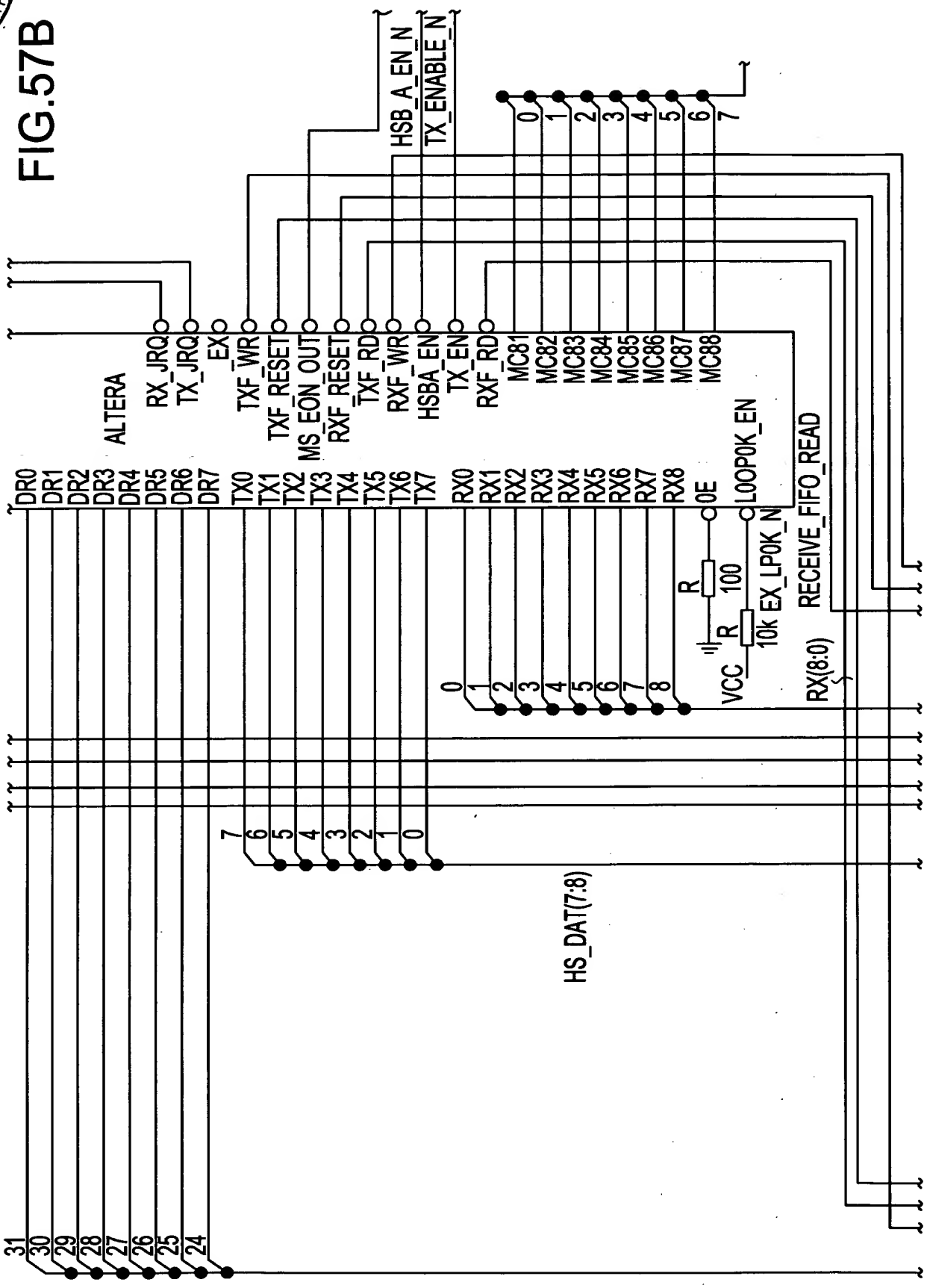


FIG. 57A

FIG.57B



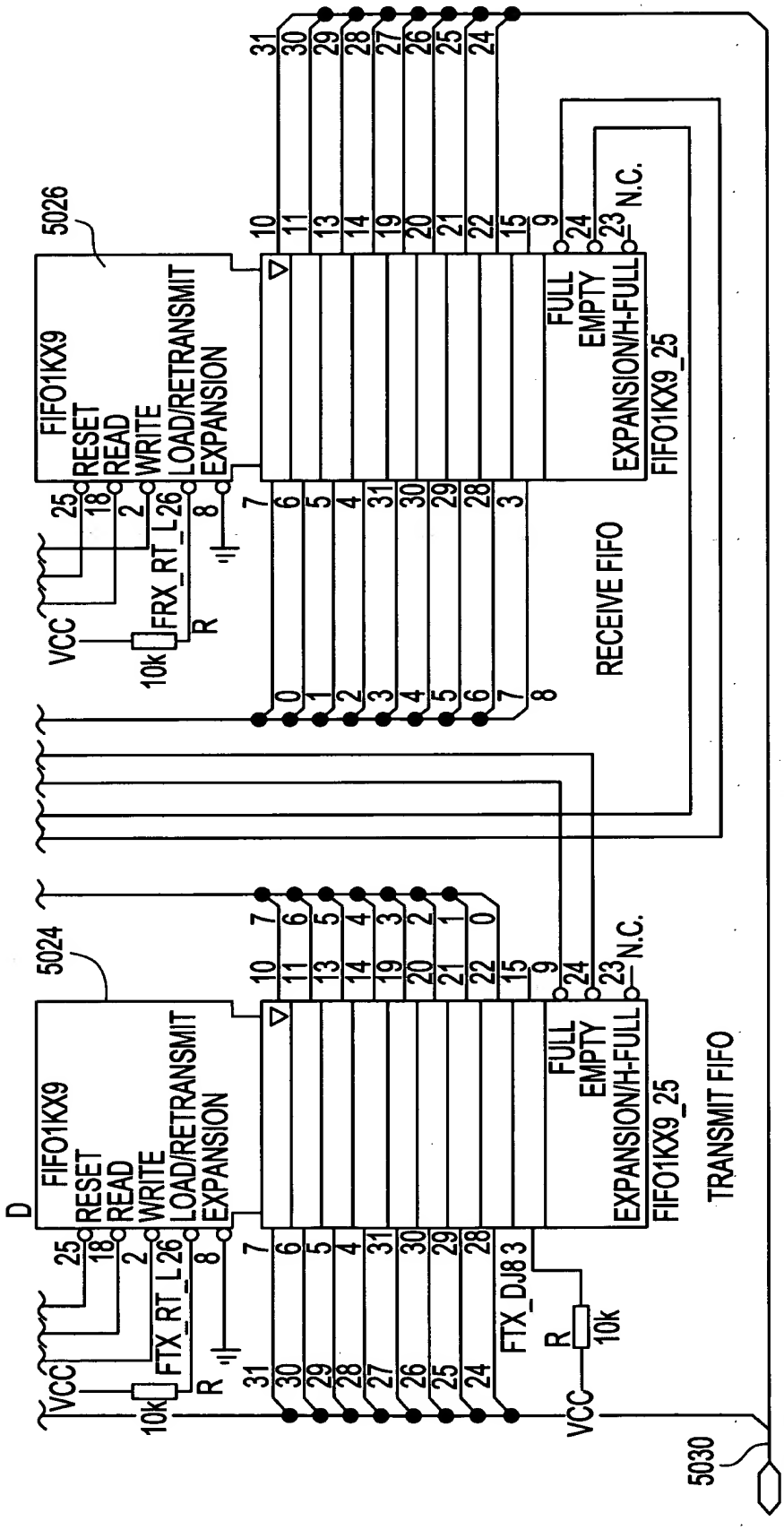


FIG. 57C

FIG. 57D

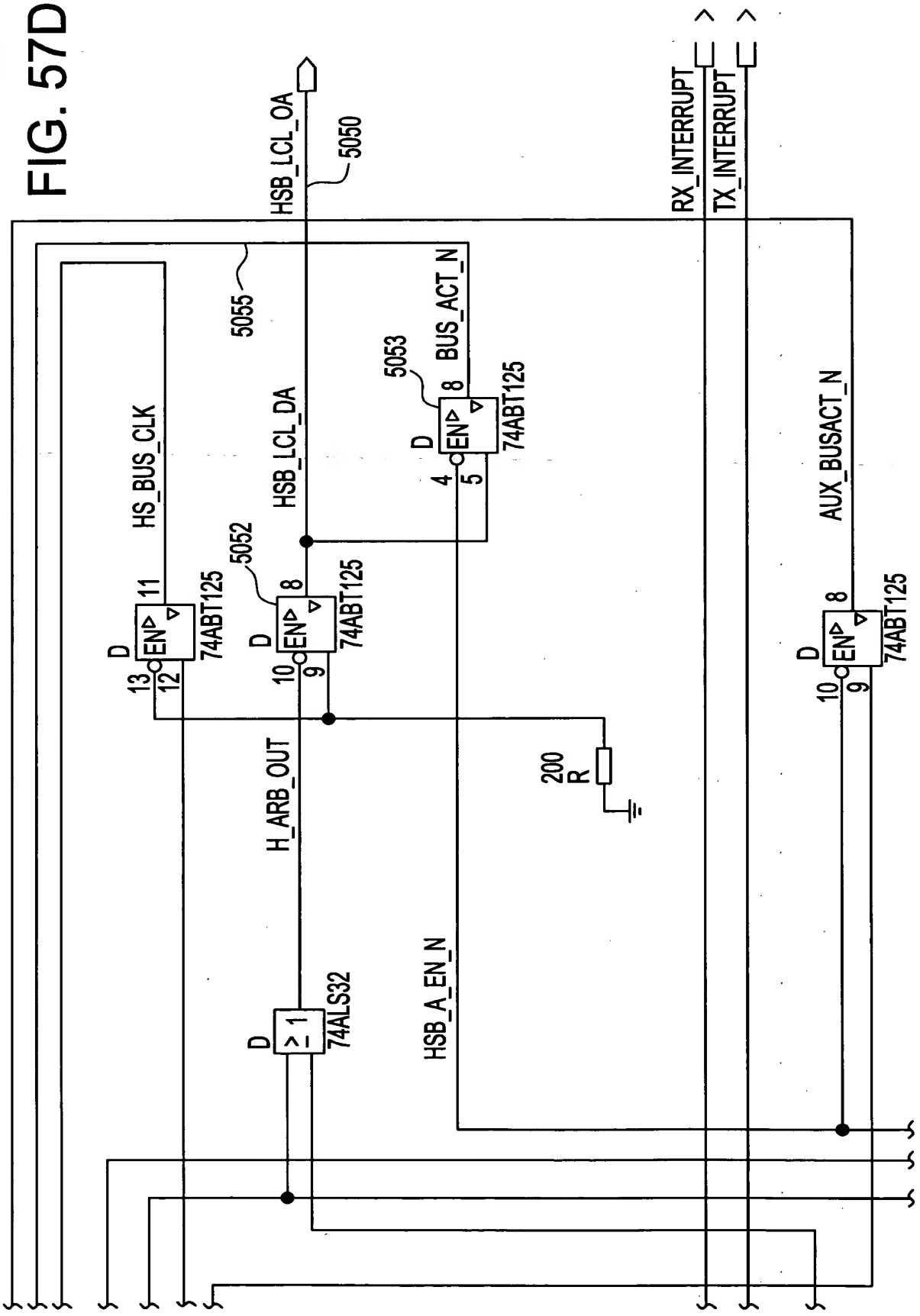


FIG. 57E

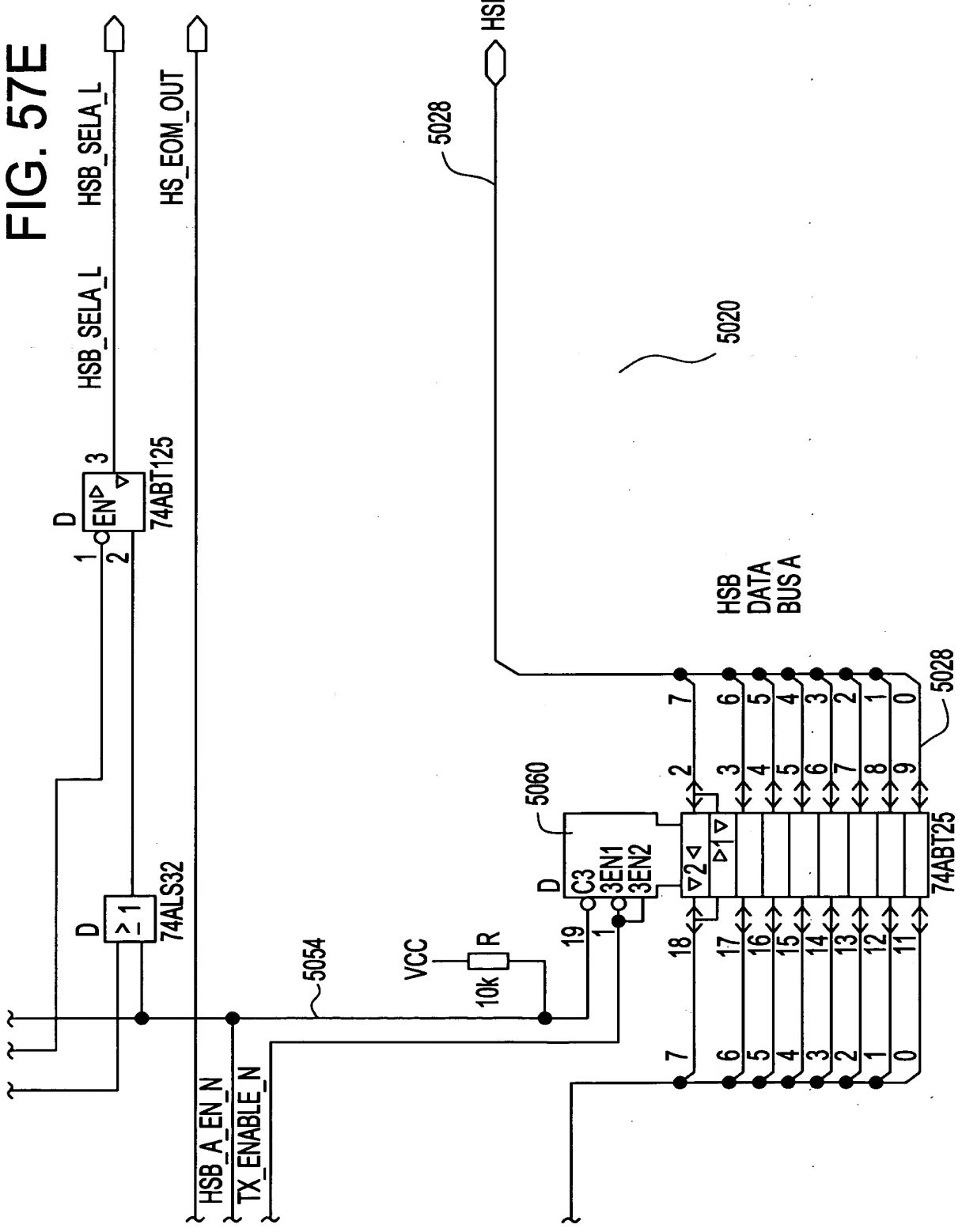


FIG. 58

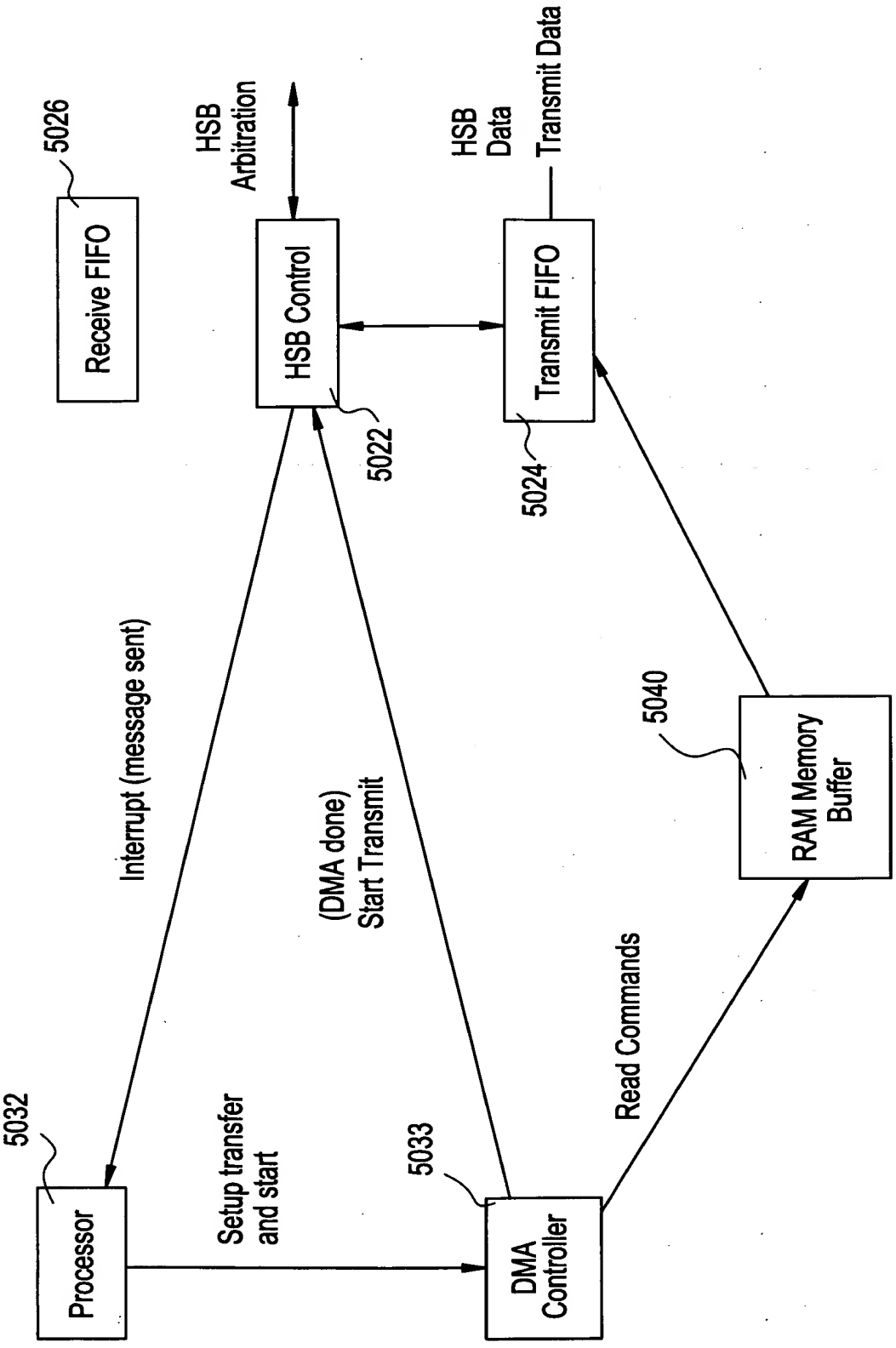


FIG. 59

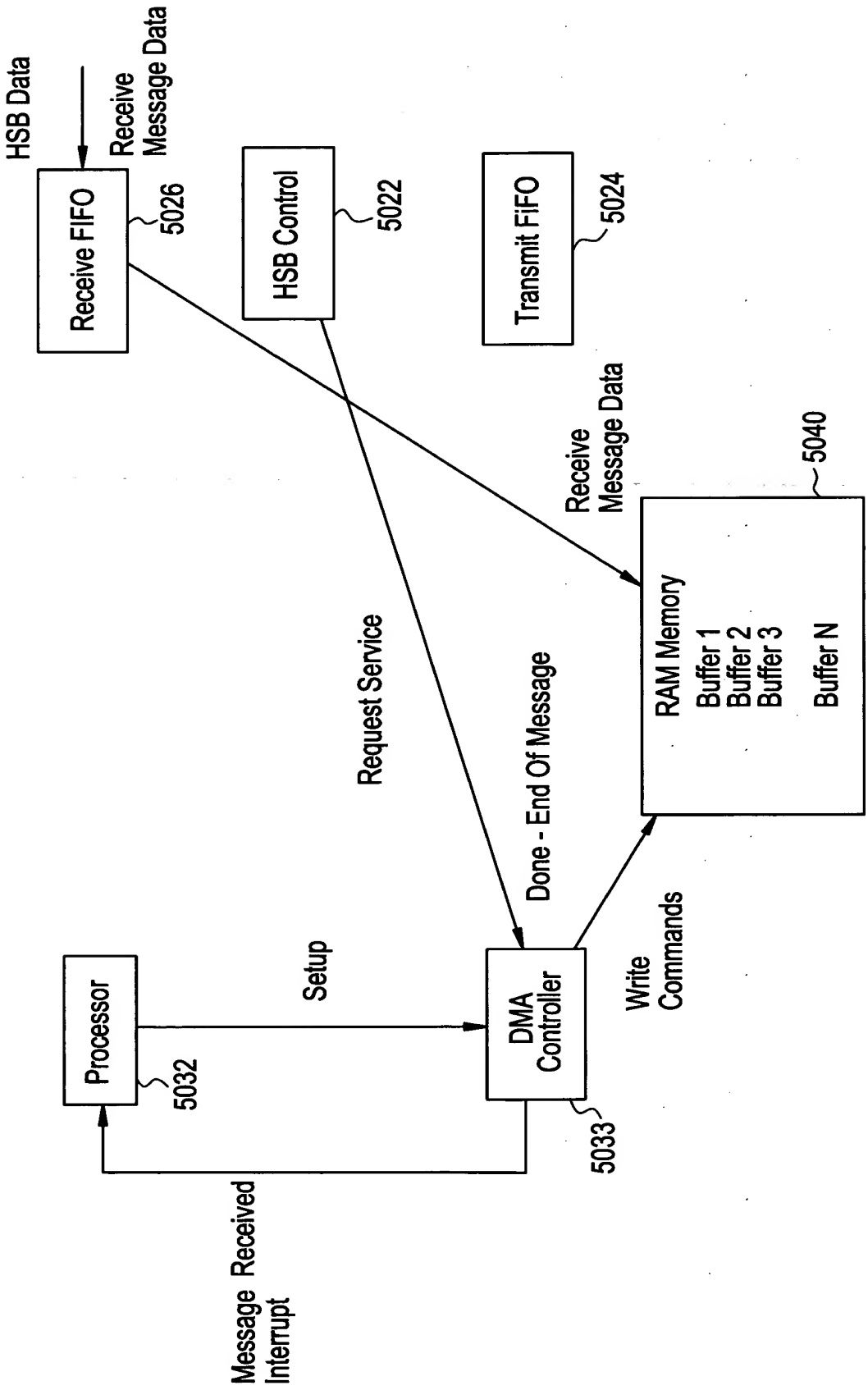


FIG. 60

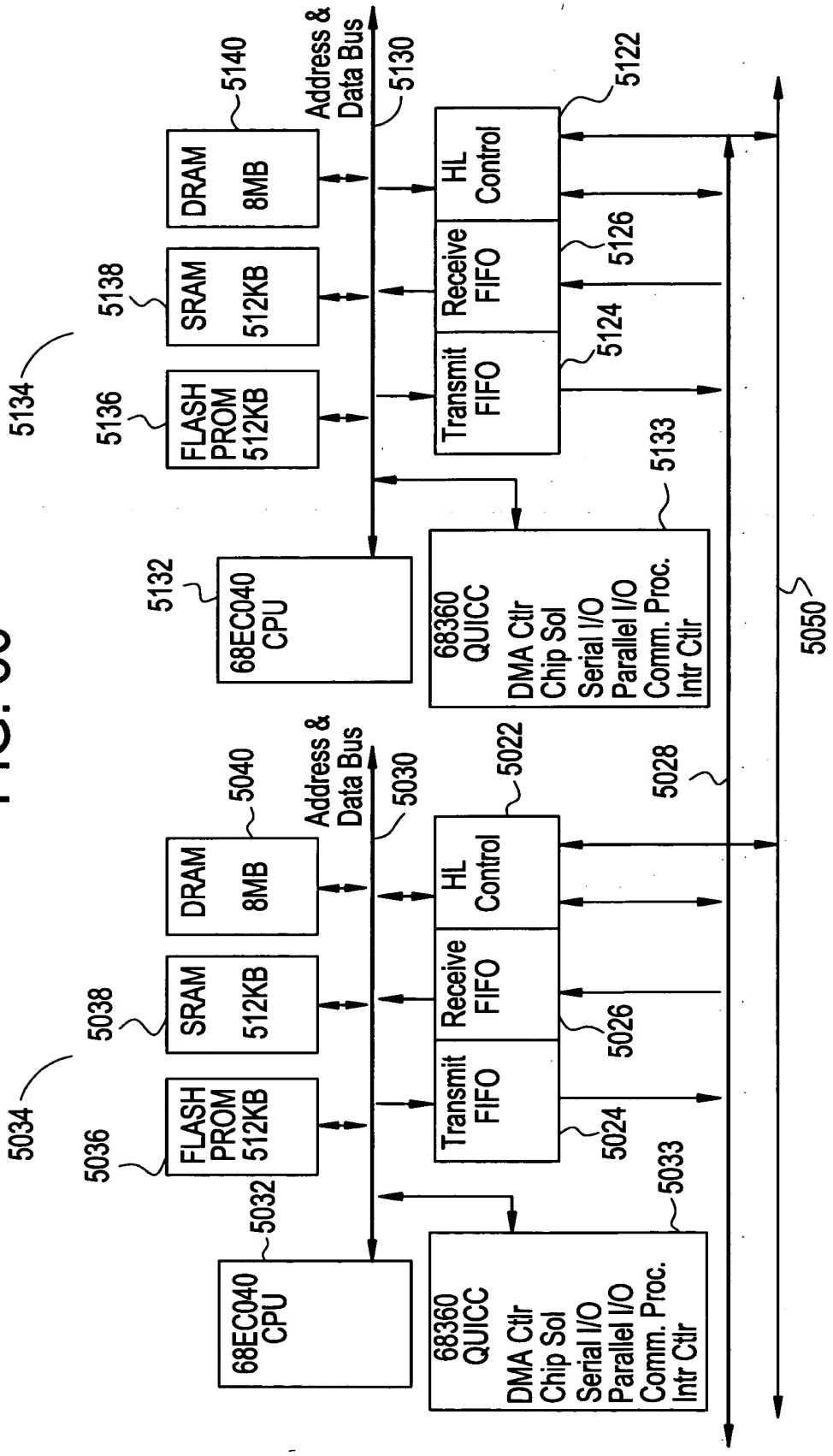


FIG. 61

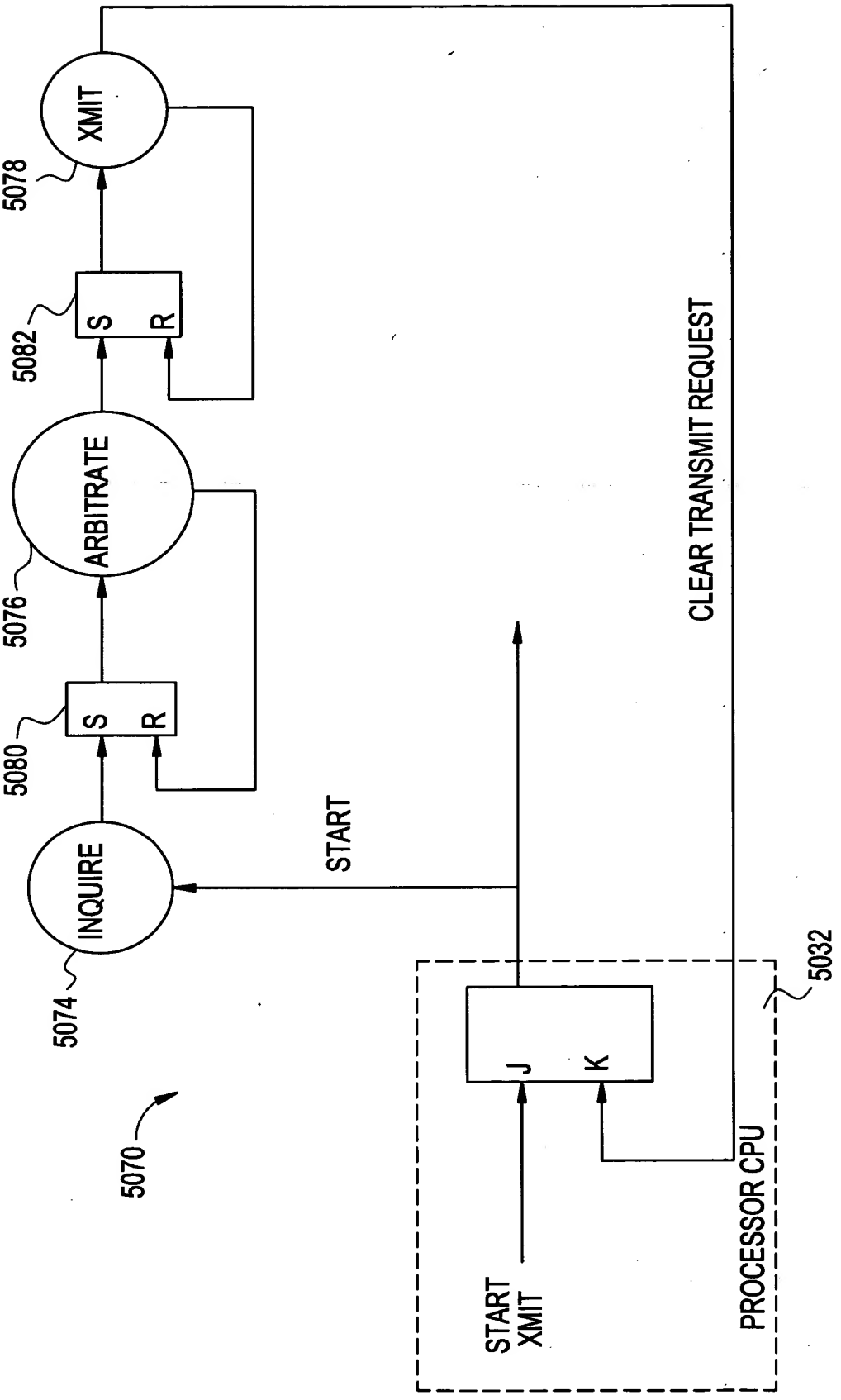


FIG. 62

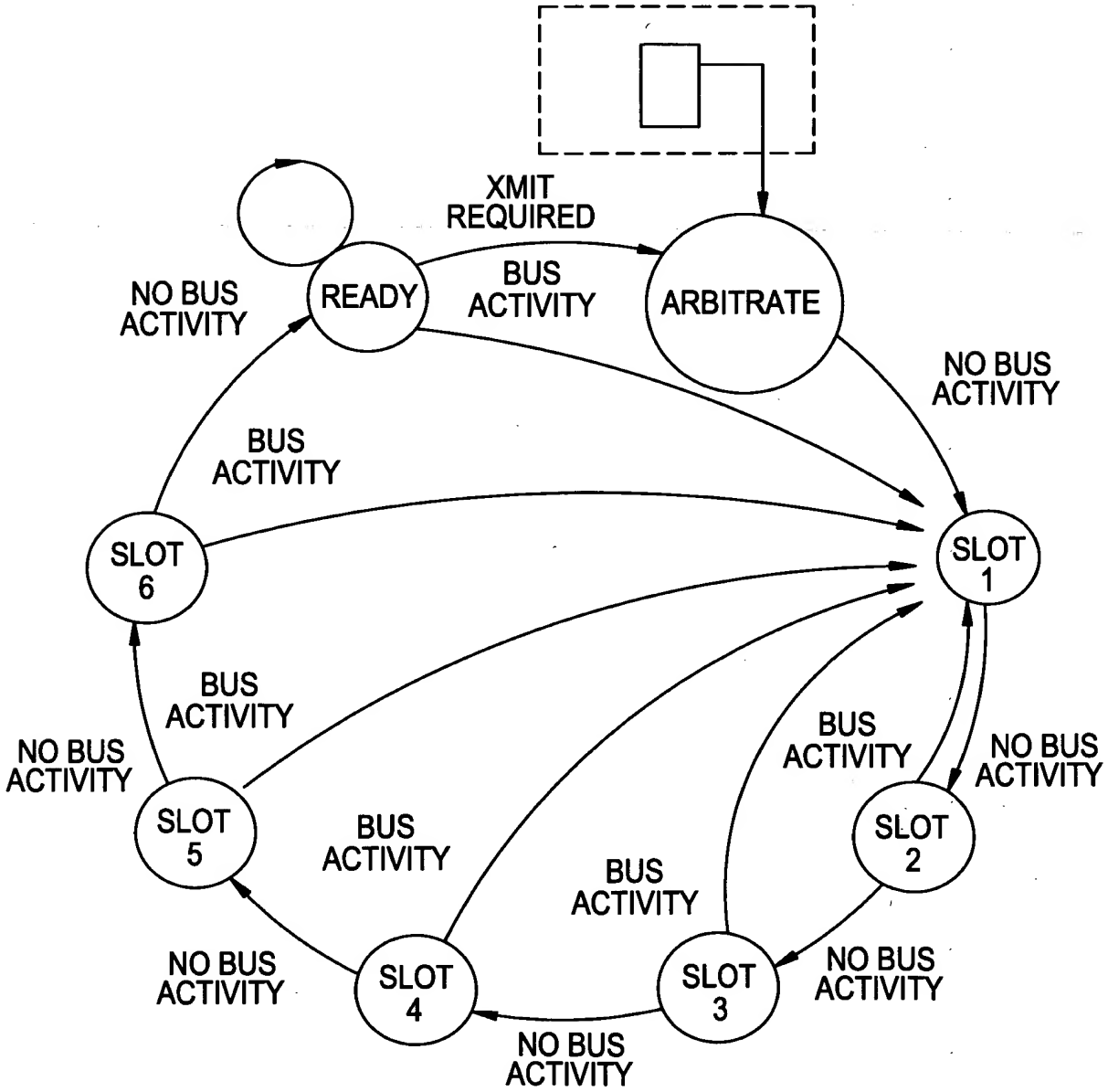


FIG. 63

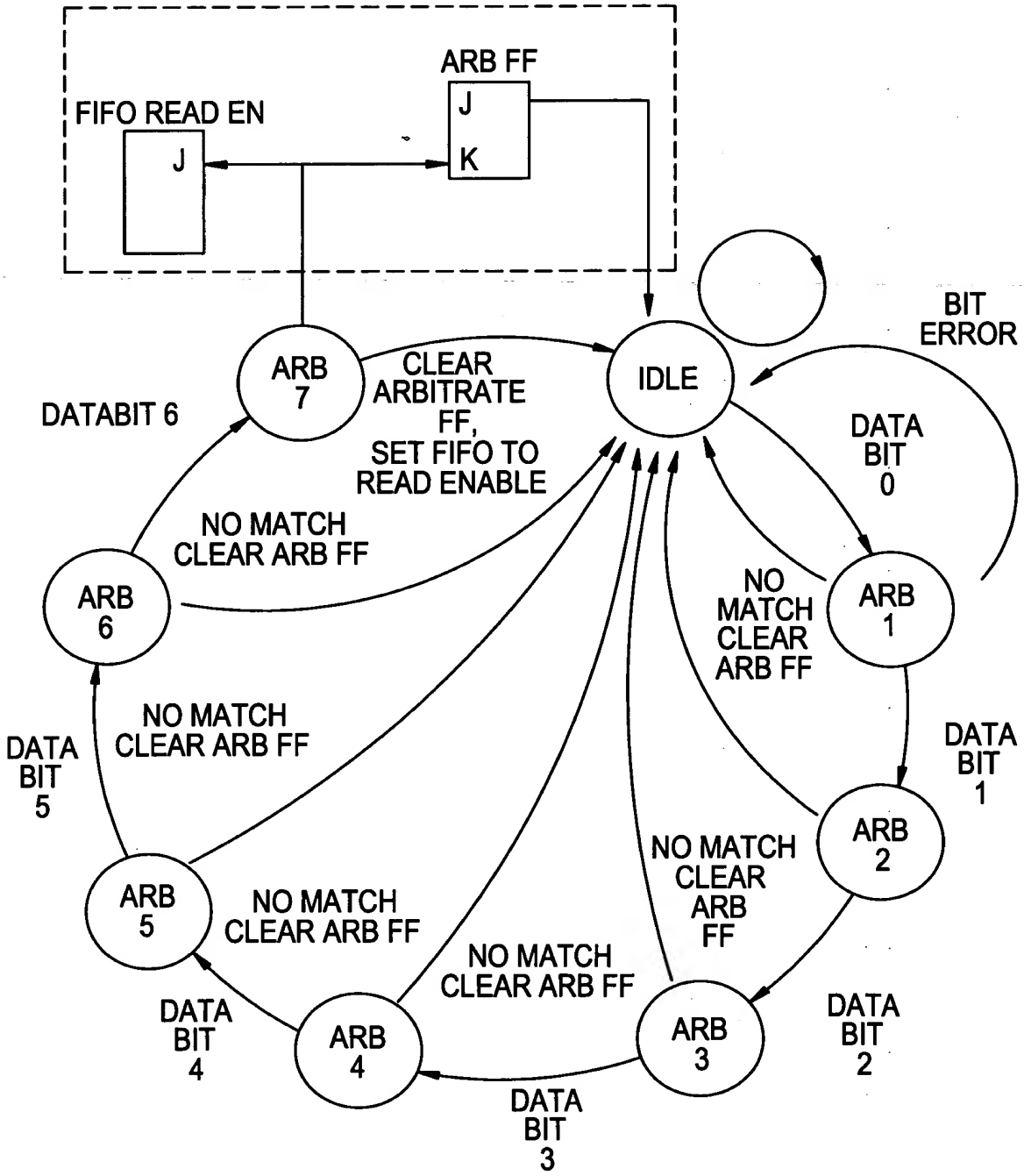


FIG. 64

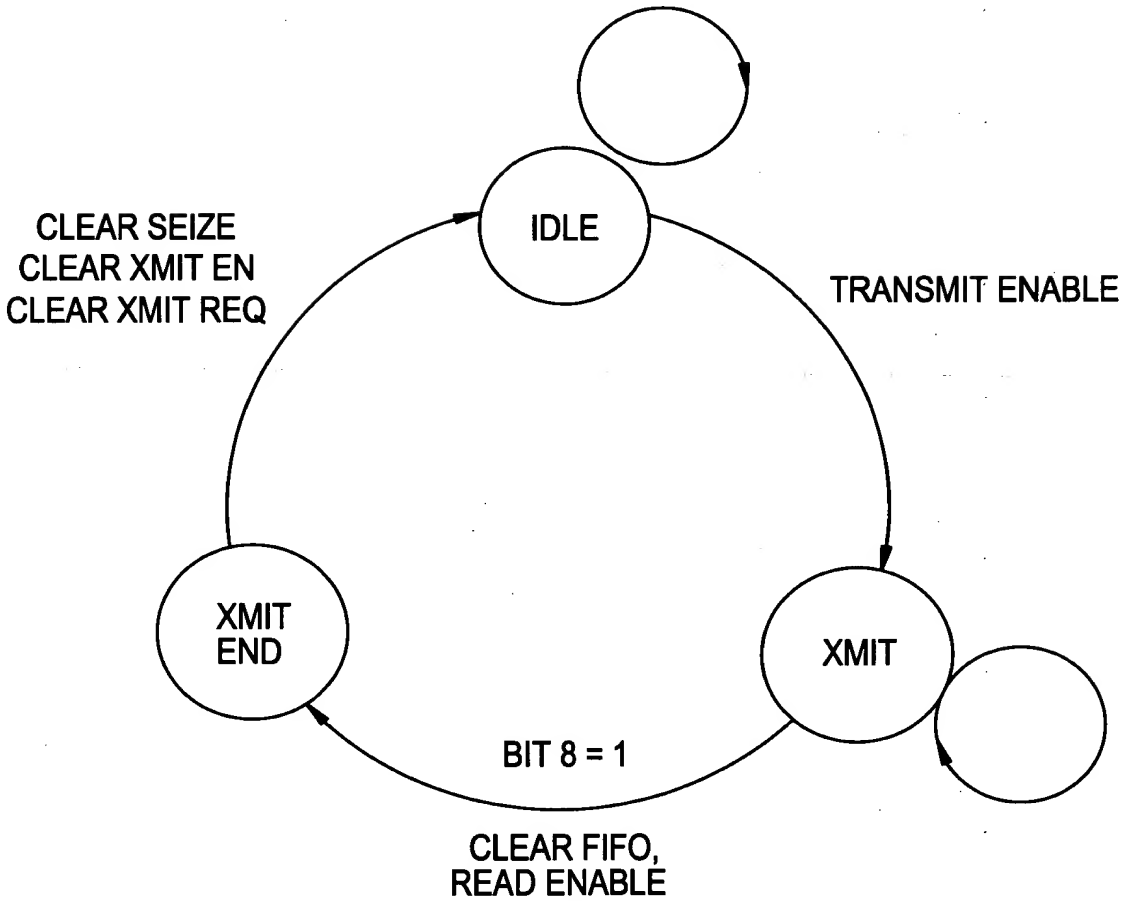


FIG. 65

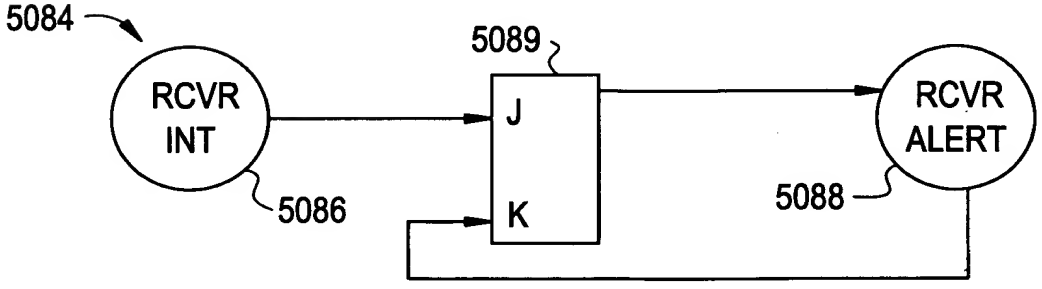


FIG. 66

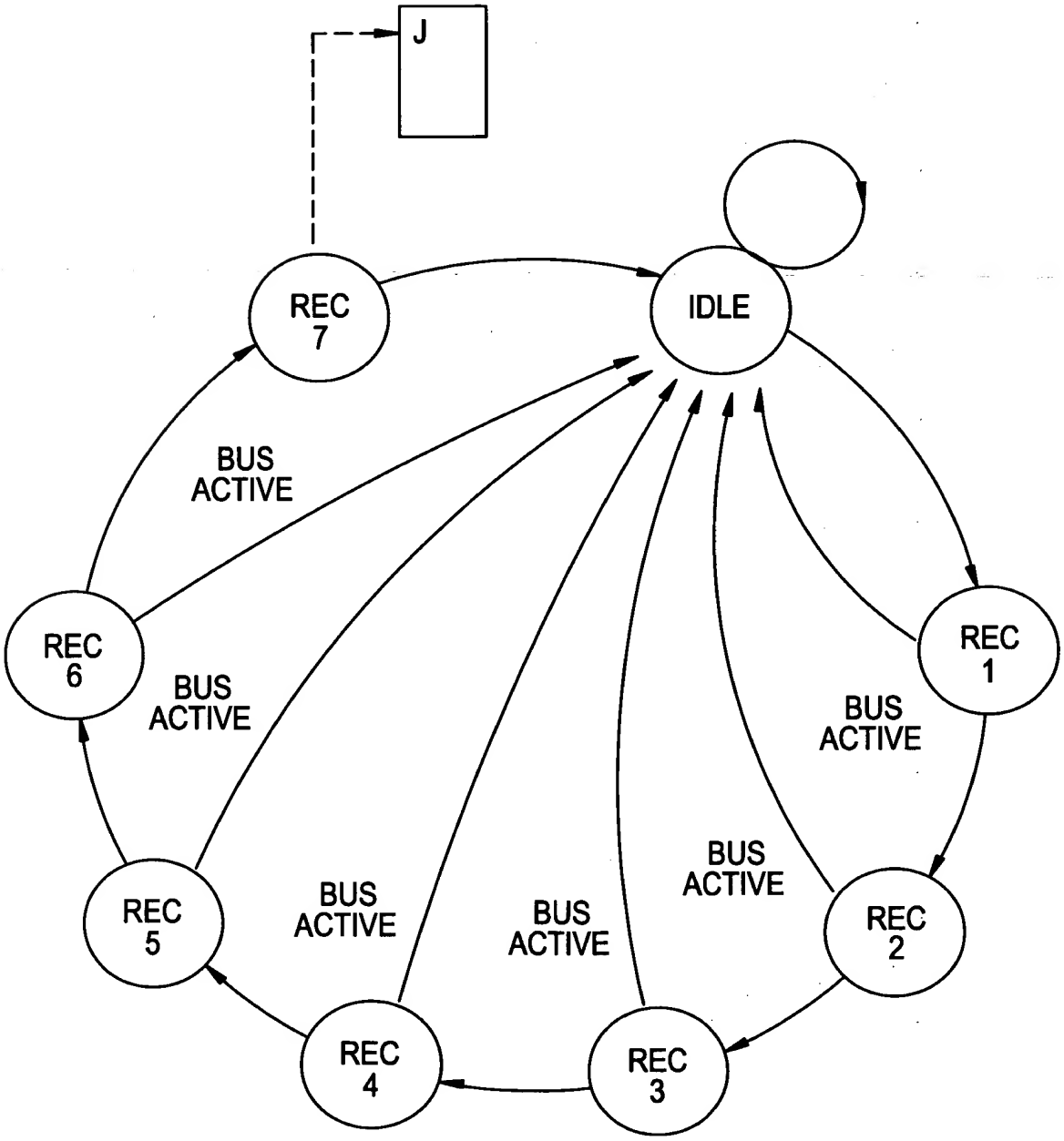


FIG. 67

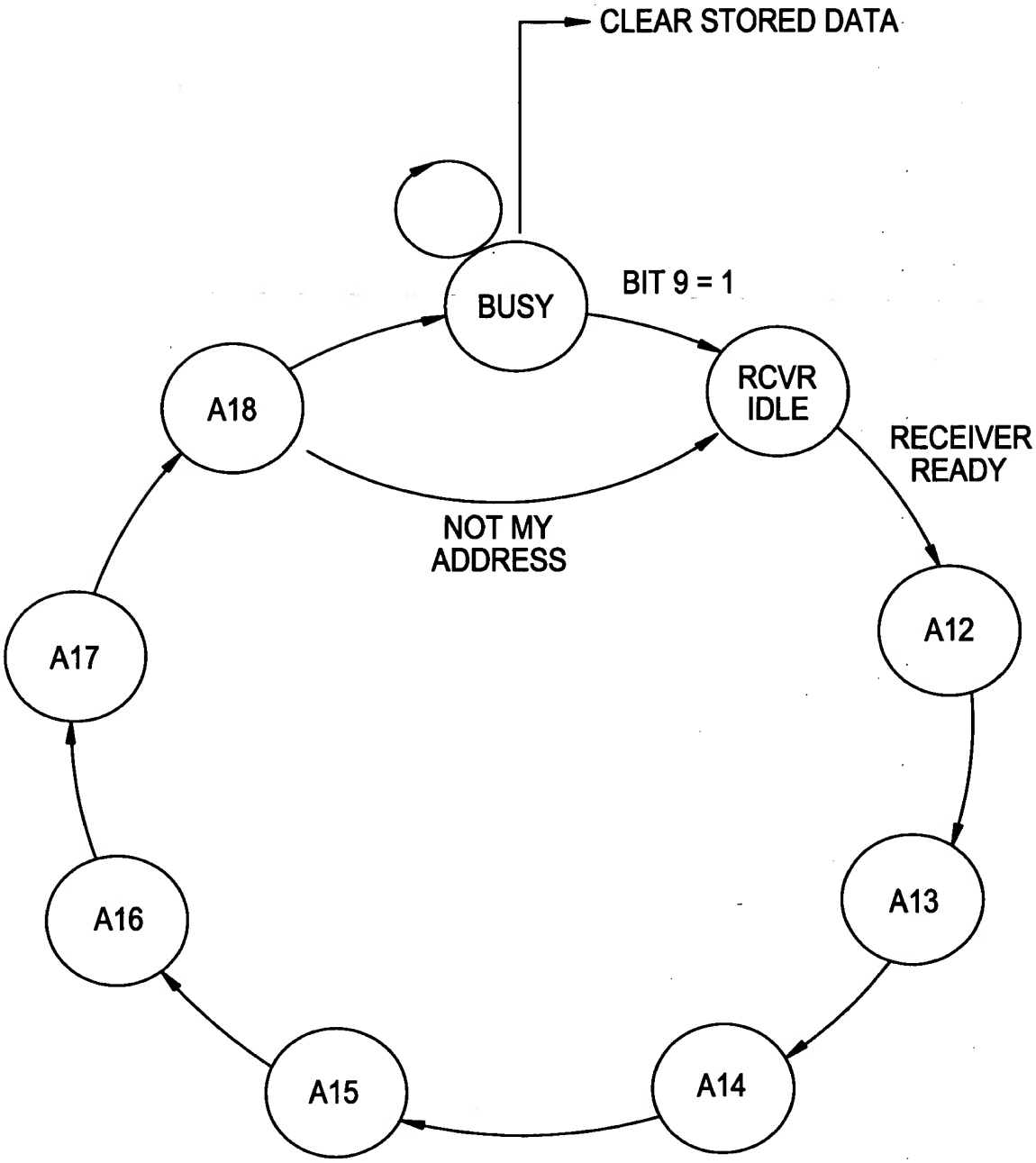


FIG. 68

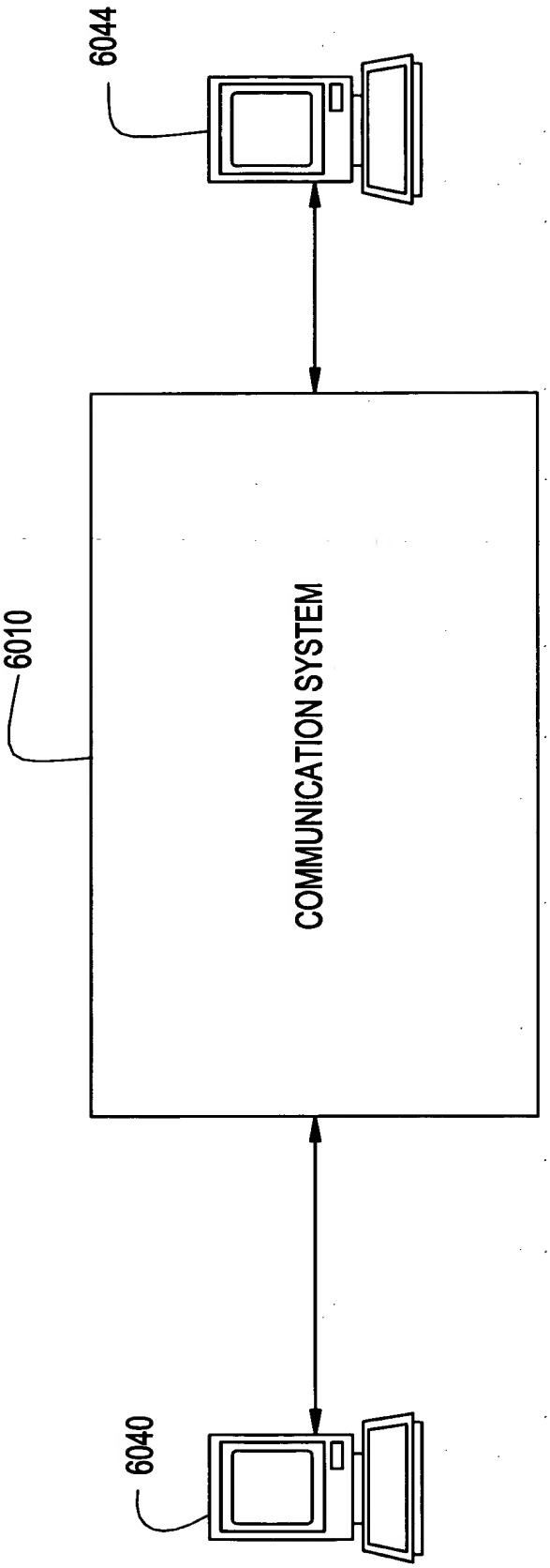


FIG. 69
PRIOR ART

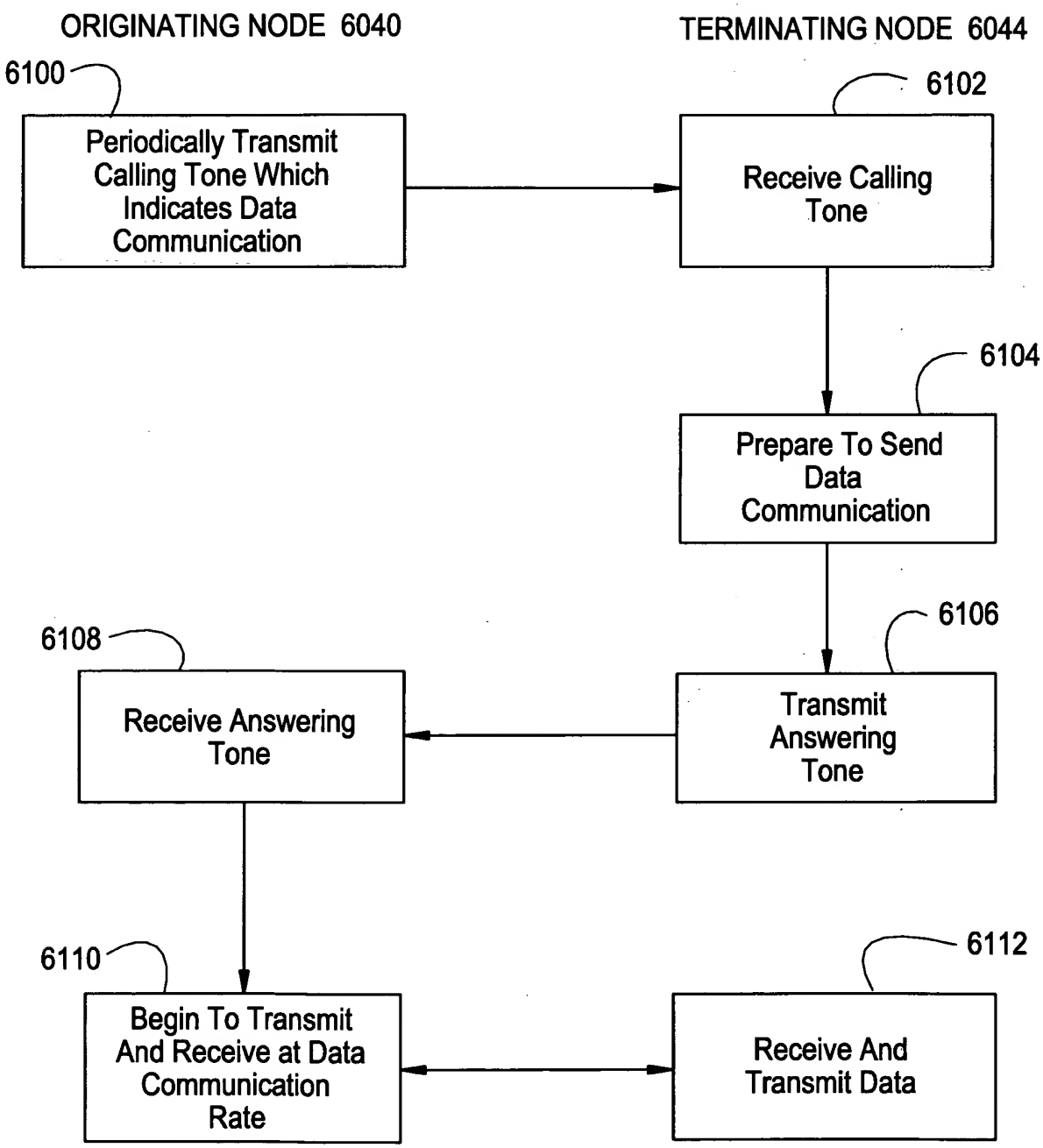


FIG. 70

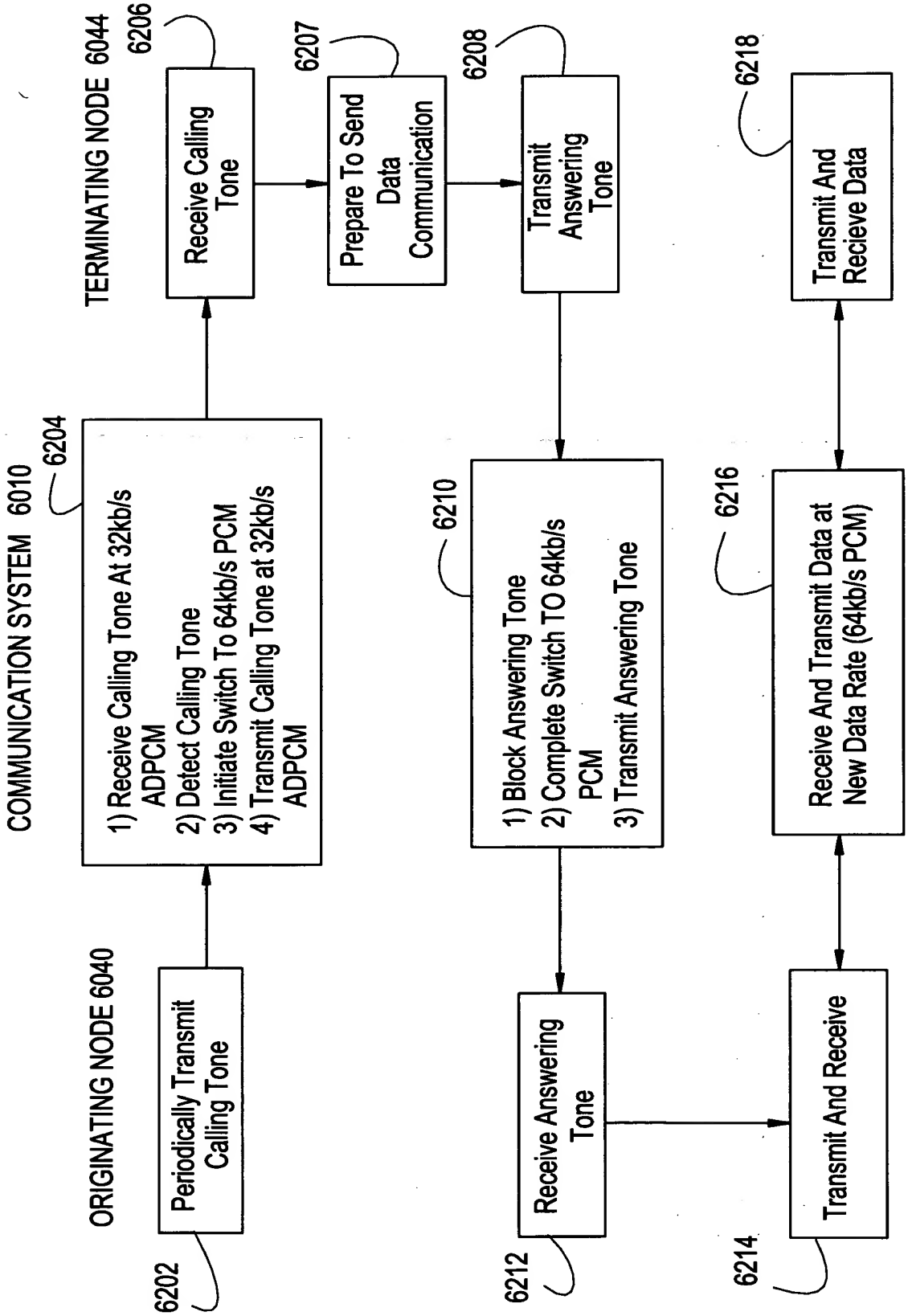
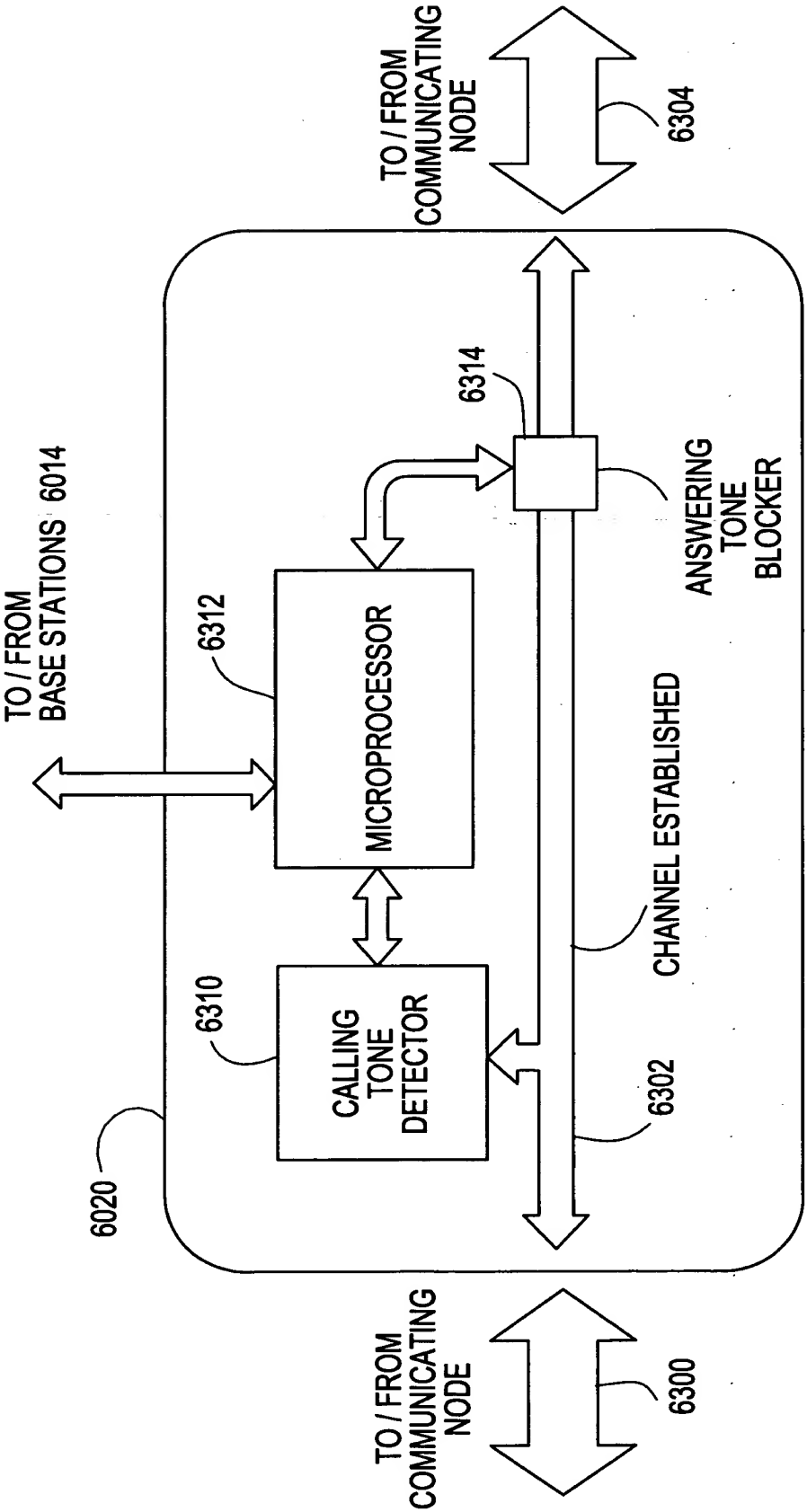


FIG. 71



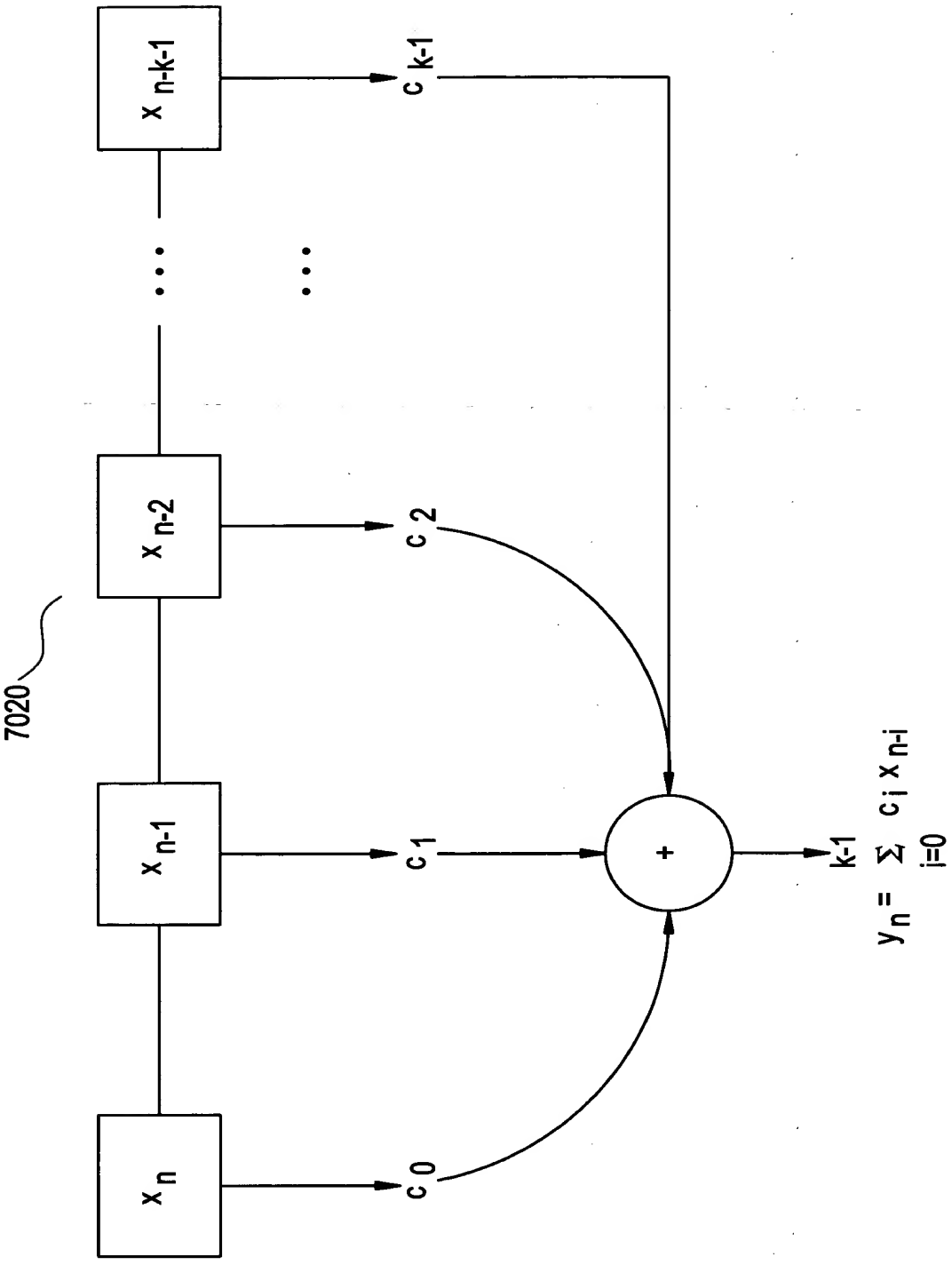


FIG. 72
PRIOR ART

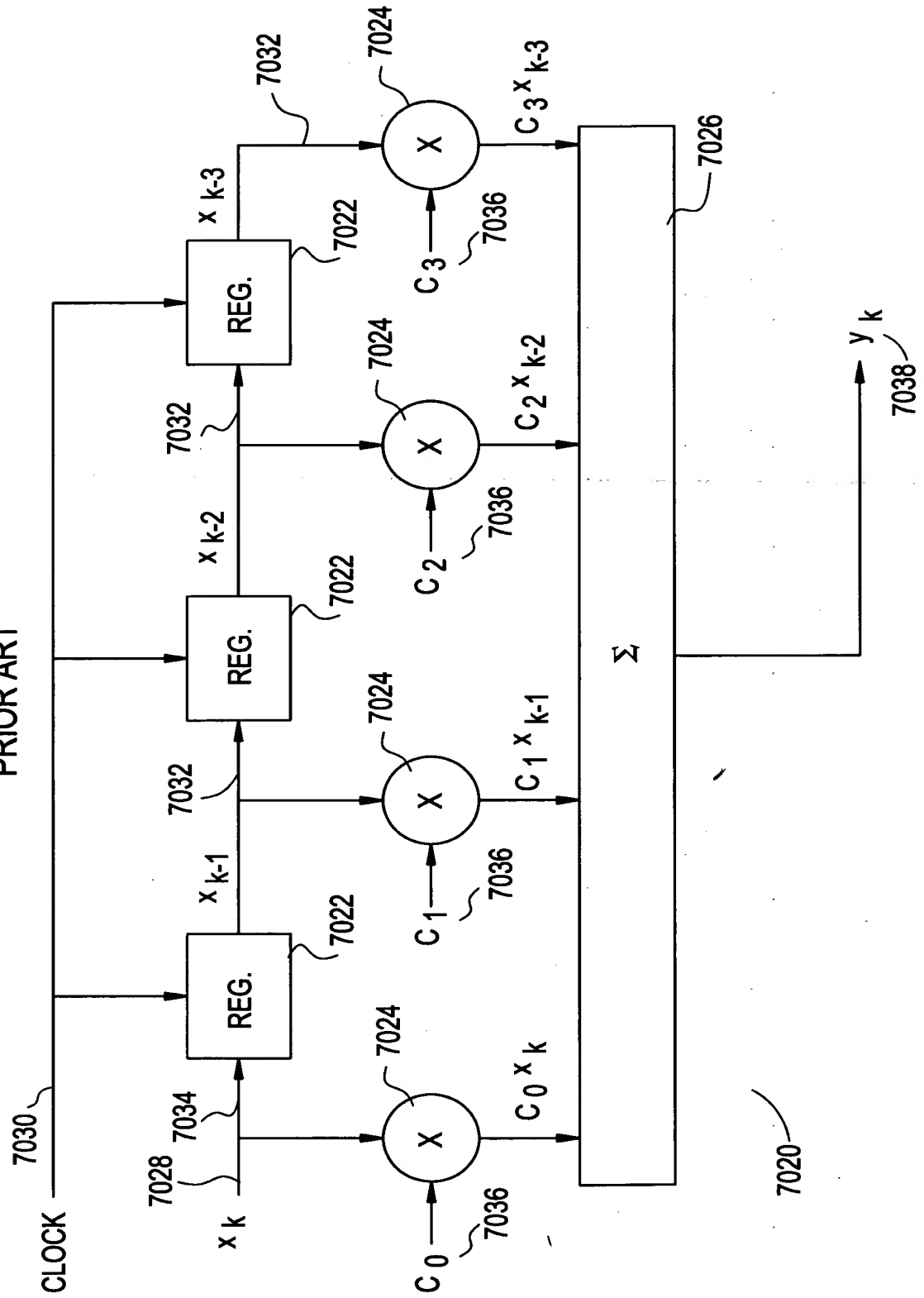


FIG. 73
PRIOR ART

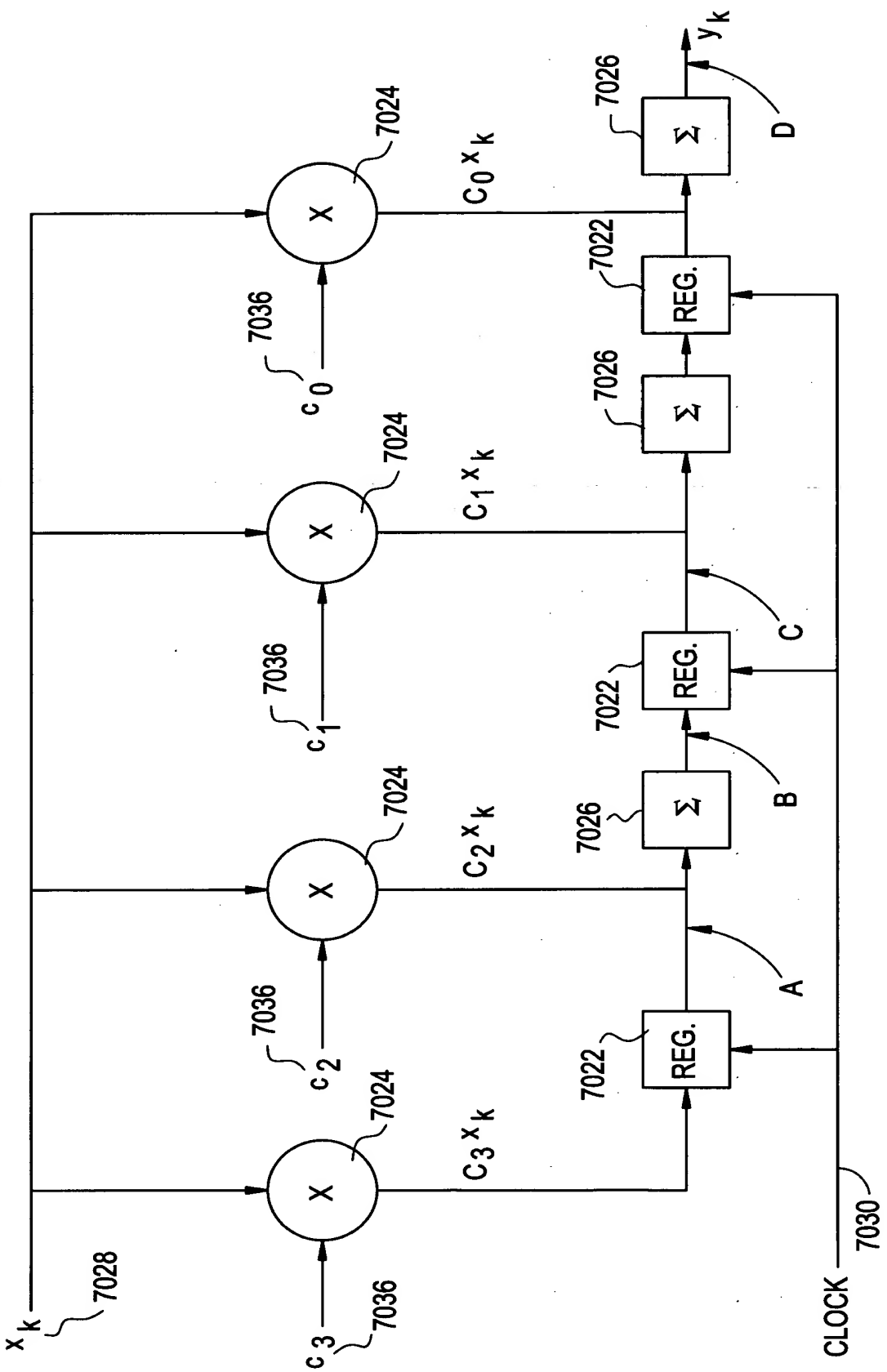


FIG. 74
PRIOR ART

FIG. 75A

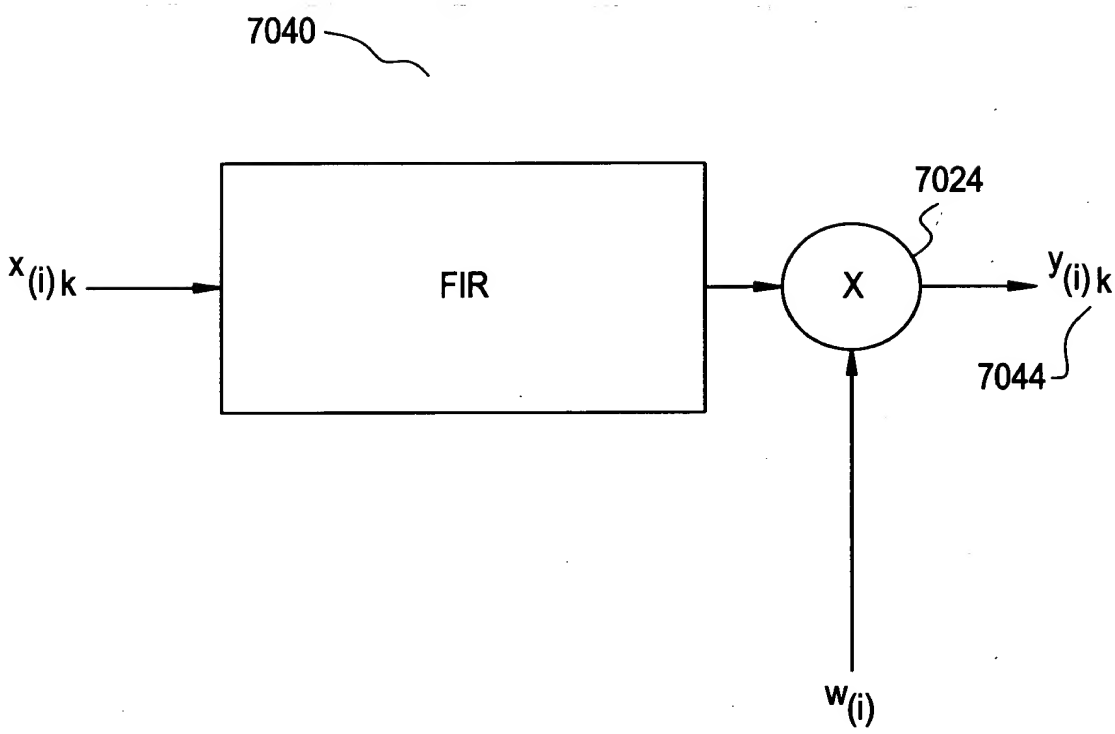


FIG. 75B

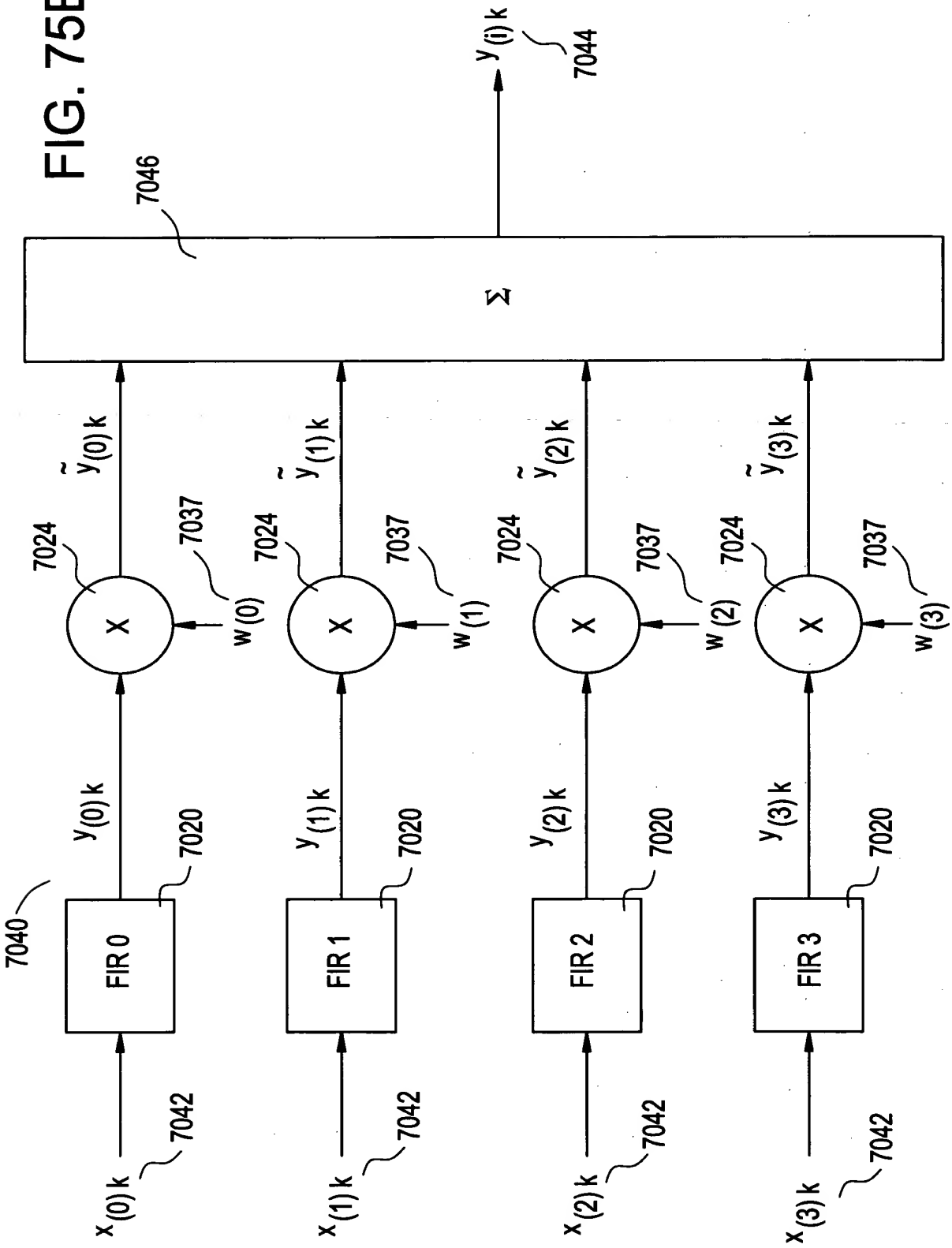


FIG. 76

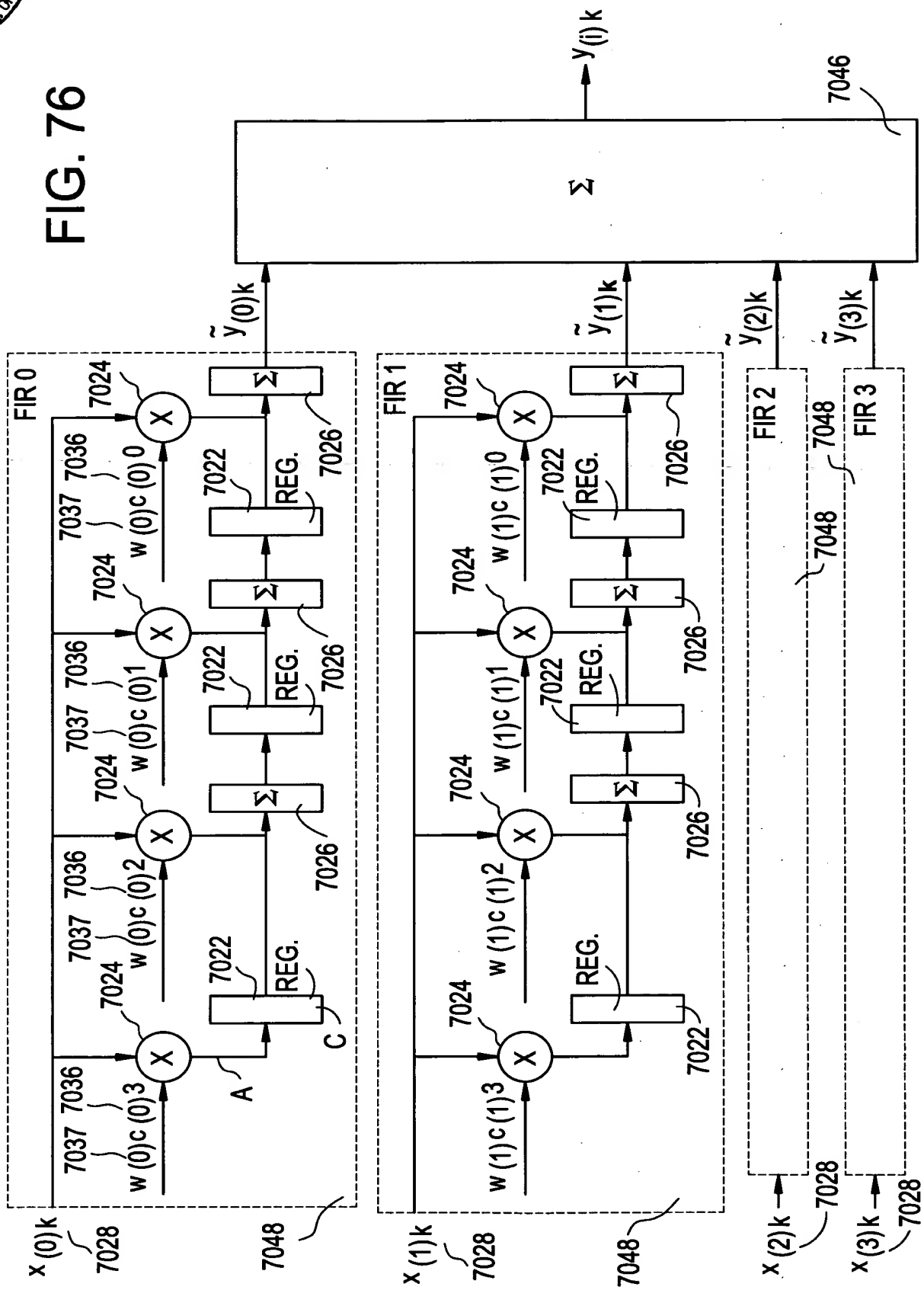


FIG. 77

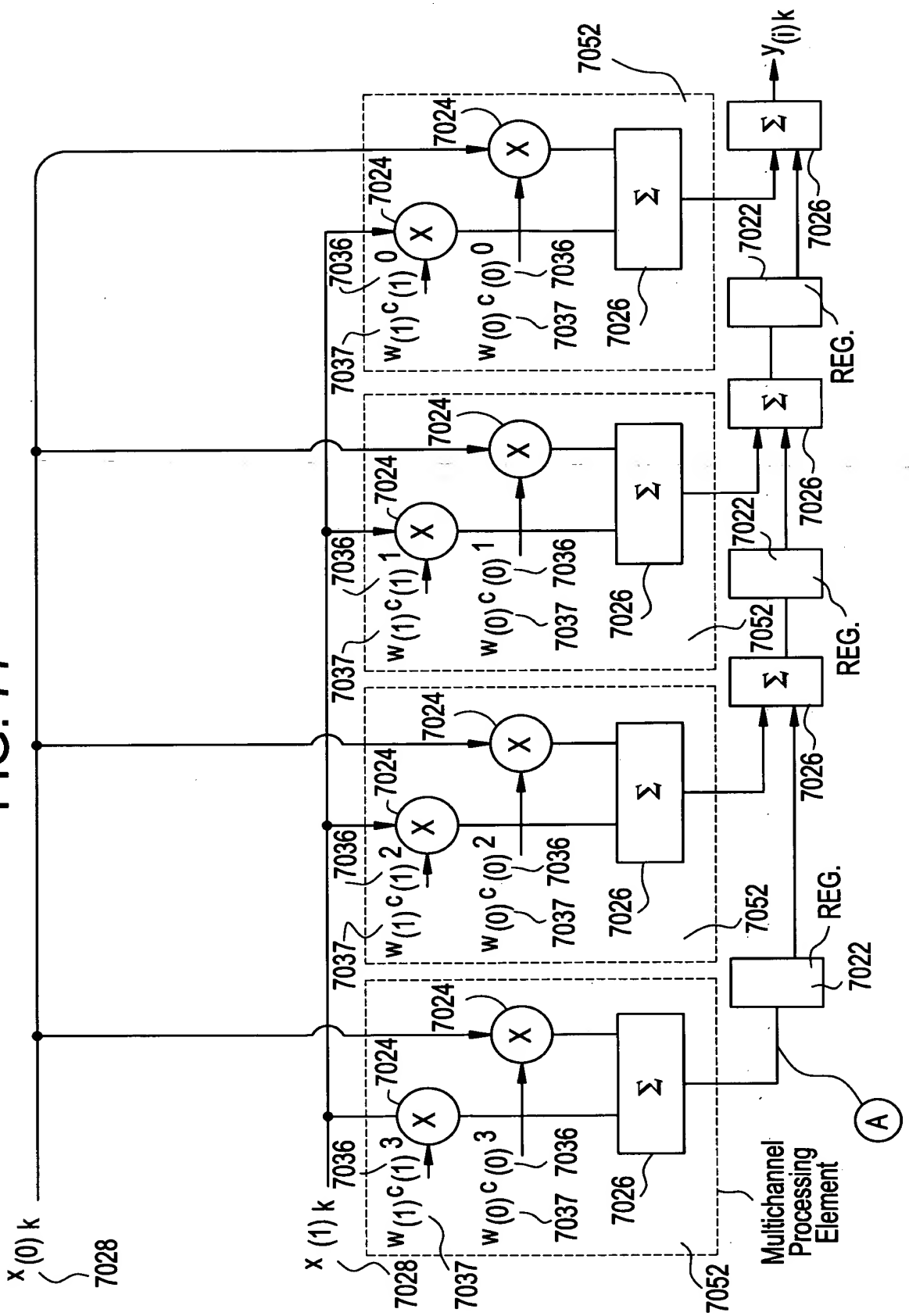


FIG. 78

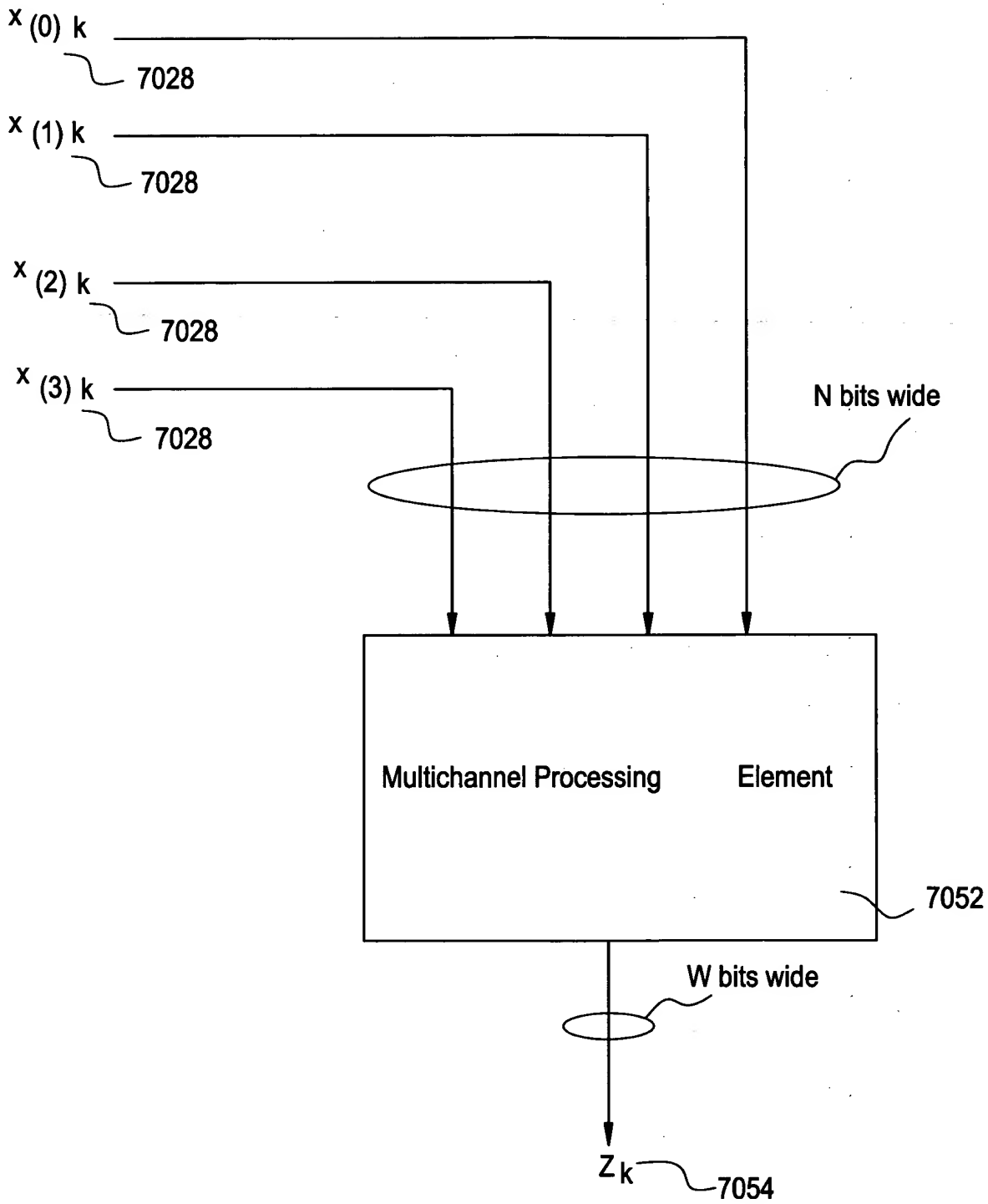


FIG. 79A

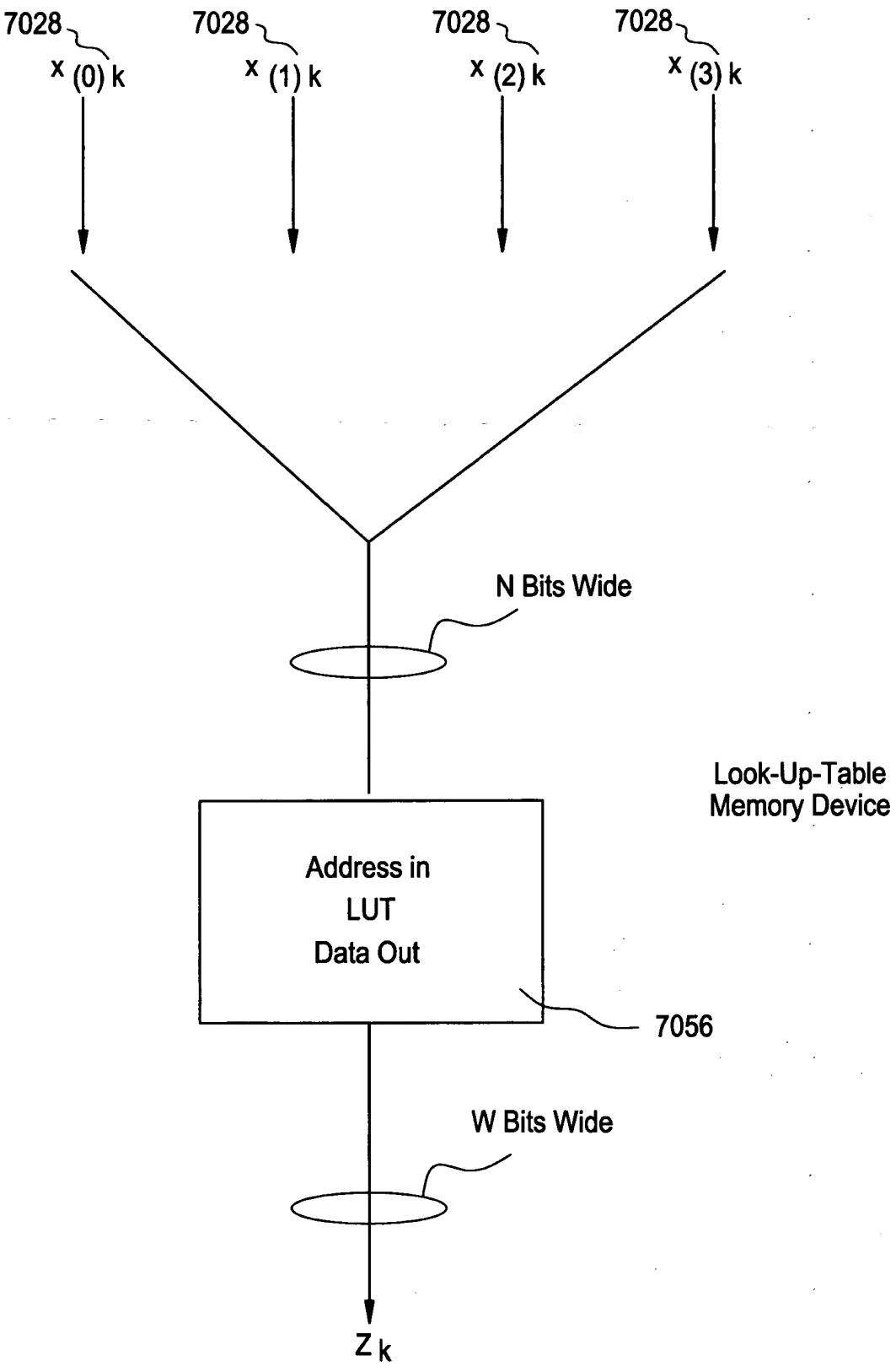


FIG. 79B

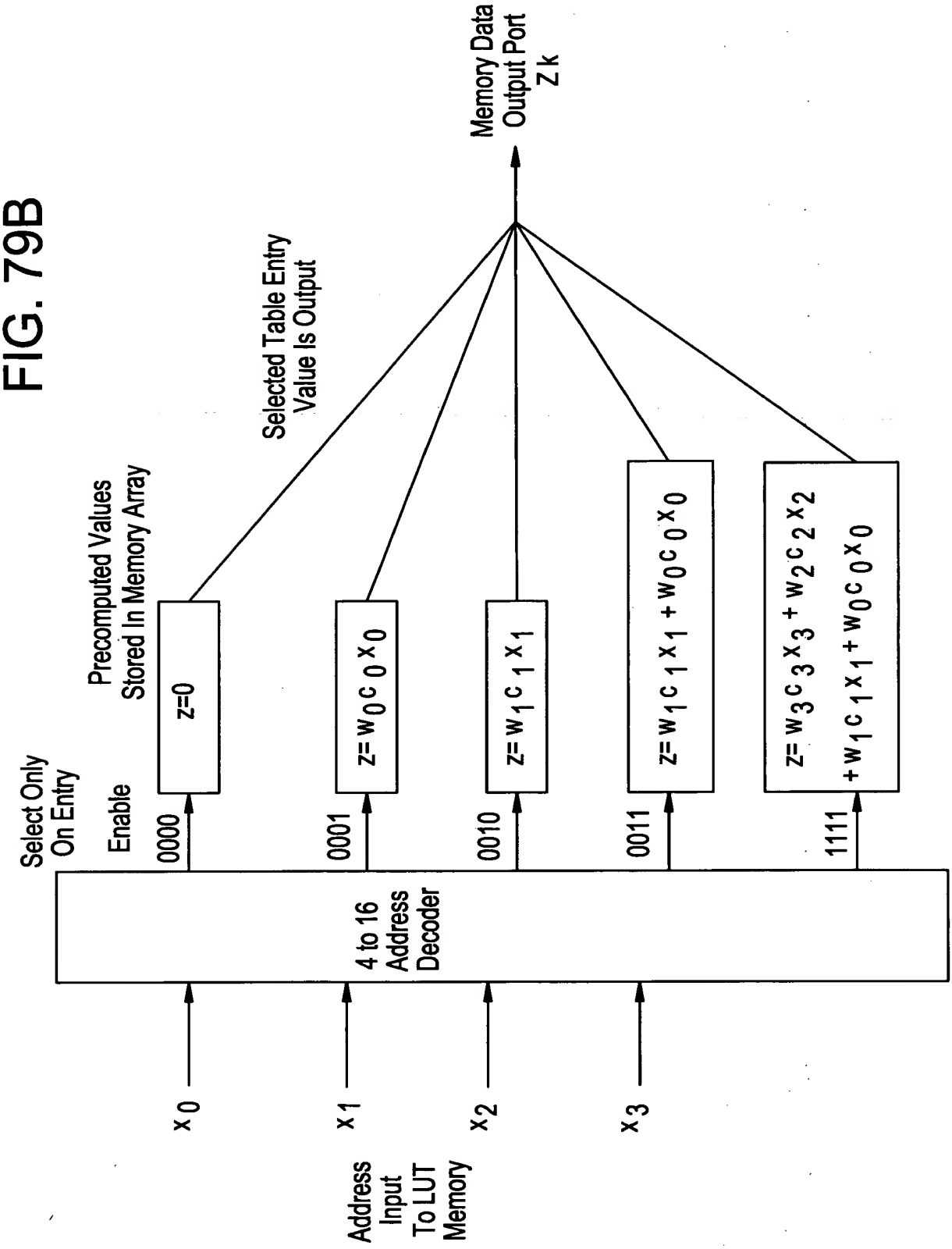


FIG. 80